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BARNES. (W^m)

PAPER

ON AN

UNIFORM STANDARD

OF

MORTALITY AND INTEREST.

FOR

STATE LIFE INSURANCE VALUATIONS.



PREPARED BY —

Hon. WILLIAM BARNES,

EX SUPERINTENDENT OF THE INSURANCE DEPARTMENT OF THE
STATE OF NEW YORK.

ALBANY, N. Y.:

WEED, PARSONS AND COMPANY, PRINTERS.
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Hon. GUSTAVUS W. SMITH,
OLIVER PILSBURY and

GEORGE M. BRINKERHOFF, *Committee of the National Insurance Convention, on Table of Mortality and Rate of Interest for the valuation of the policies of Life Insurance companies:*

GENTLEMEN,— On your invitation, I was present at a meeting of the committee, at the May session of the National Insurance Convention, in the city of New York, and, having been called upon by the chairman, made some unprepared remarks on the subject under discussion, mostly conversational, and in response to special inquiries by the members of the committee and other delegates present at the meeting.

The great importance of this subject to the future prosperity of the business of Life insurance in this country has induced me to prepare the following Paper, which I now submit as containing my matured views.

I present it to you, and through you to the Convention, to the Legislatures of the different States, and to the great body of the American people, as the results of a somewhat varied and extensive experience as an executive and supervising officer.

I beg leave to premise in advance, that your organization will become a permanent one, and that it will hold annual sessions of greater or less duration in different parts of the country, for the continuous discussion and promotion of the great interests entrusted to your supervision.

I have long felt the need of some National body in which inter-state insurance interests, laws and regulations, could be calmly and disinterestedly discussed, for the promotion of the general good and the full development of harmony, in accord with the National constitution and the peculiar autonomy of the different States of the American Union. This body of Insurance Superintendents should be a permanent one, having continuous existence in the successive State officers invested with the functions of official inspection and supervision of insurance companies in the different States.

Annual meetings, for purposes of personal acquaintance, discussion and consultation, should, and undoubtedly will, lead to the promotion of the common interests of the Fire, Marine and Life insurance companies, and of the great body of the people, whose interests it is their duty to foster and promote.

Your decisions and recommendations here, however, although justly entitled to great consideration and influence, are not, and should not be, final and conclusive as to the various points under discussion. Your action is simply recommendative, and is subject to reconsideration by future conventions of your own successors in office, and open also to the critical supervision of the Legislatures of forty-eight different States and Territories, and of their successors in office, upon whom the direct and immediate responsibility rests, so far as legislation is concerned. It will therefore, readily be seen that sound policy and wise statesmanship will counsel slow progress, and the adoption only of such action as will be entitled to receive, and which will probably meet with, the general concurrence of the different States and the approval of the insurance companies and of future conventions of Superintendents.

It would be very unfortunate, if through ill-advised and precipitate or inconsiderate action, recommendations should be made which failed to commend themselves to the sound judgment and true interests of the different States, or which, after being adopted by the present Legislatures, should be repealed by succeeding ones.

The most important point which can claim your attention is, undoubtedly, that of a standard Table of Mortality and Rate of Interest for Life Insurance Valuations and calculations. Here, uniform action, if in the right direction, is more important than in any other, as the Table of Mortality and the rate of interest permeate the whole constitution and being of a Life insurance corporation, and a divorce or change, after the lapse of a few years, becomes very difficult and complicated.

Numerous and convenient Tables will also multiply in various forms, whenever a common mortality and uniform rate of interest have been adopted by the companies and the Legislatures of the different States.

In approaching this subject, it is of the first importance that we should definitely understand what are the *existing* laws of the various States of the Union, now actually in force, prescribing Rates of Interest and Tables of Mortality, for determining the liabilities of Life insurance companies.

The following is a summarized statement of the laws of the dif-

ferent States which have prescribed, by statute, Tables of Mortality and Rates of Interest to be assumed in testing the soundness and solvency of these institutions:

NEW YORK.

The standard in this State is the *American Experience Table* of Mortality, with *four and a half* per cent interest.

Chronologically, the subject has been legislated upon in New York as follows:

A. D. 1828.

During this year that portion of the Revised Statutes was passed which related to "Moneyed Corporations," which term was defined to cover, among others, every corporation authorized by law to make insurances. 1 R. S. 598, § 51. Moneyed corporations (and insurance companies, therefore), which were incorporated after 1828, or the charters of which were renewed thereafter, were required to make annual statements to the Comptroller yearly, on the first day of January, in a form prescribed by said statute and by that officer. Under this statute Fire and Marine insurance companies reported to the Comptroller with more or less regularity from the year 1830 to the passage of the general insurance act of 1849.

See Burnes' N. Y. Condensed Insurance Reports, vol. I, passim; 1 R. S., Part I, chap. xviii, title 2, § 19, p. 593, first edition.

A. D. 1849.

During this year the first general insurance Act was passed under the provisions of the Constitution of 1846, which thereafter abolished *sub modo* all special charters, and required the passage of general insurance laws.

This act was passed April 10, 1849, and was entitled "*An act to provide for the incorporation of insurance companies.*" *Sess. Laws, chap. 308.*

By the provisions of the seventh and thirteenth sections of said Act, insurance companies of this and other States and foreign countries doing business in New York, were required to make annual statements yearly in the month of January, showing their condition, as prescribed by statute, under a blank form to be furnished by the Comptroller; and in case the capital of any company, through losses and expenses, or otherwise, had become deficient or impaired to the extent of twenty-five per cent thereof, the company was obliged to make an assessment, wind-up its affairs, or discontinue business in

this State. This statute did not in express terms refer to the subject of re-insurance as a liability of an insurance company.

A. D. 1851.

During this year the first act was passed expressly relating to Life insurance companies only. It was entitled "*An act in relation to all companies transacting the business of Life insurance within this State.*" Passed April 8, 1851. *Chap. 95, Sess. Laws, 1851.*

This act required a deposit with the Comptroller, by all Life insurance companies doing business in New York, of \$100,000.00, for the security of policyholders.

By the fourth section of this act special reports were required from Life insurance companies of sister States and foreign governments, showing certain specified items of information, among which was "the amount of fund reserved for re-insurance."

The fifth section empowered the Comptroller to appoint one or more competent persons to examine into the affairs of Life insurance companies transacting business in this State, to examine their books, etc.

If the assets appeared to be insufficient to insure the outstanding risks, or the company to be in an unsound condition, it was required to be dissolved; or, if from another State, to discontinue its business in New York. §§ 6 and 7 *id.*

A. D. 1853.

During this year the first general Life Insurance Act was passed, which act has since that period mainly regulated the business of Life insurance in this State. It was entitled "*An act for the incorporation of Life Insurance Companies, and in relation to agencies of such companies.*" Passed June 24, 1853. *Sess. Laws, 1853.*

By the twelfth, fourteenth and fifteenth sections of this Act all Life companies doing business in this State were required to make annual statements of their affairs on the first day of January, or within sixty days thereafter, containing certain detailed and specific information in a blank form, which was to be furnished and modified by the Comptroller. The re-insurance liability is not specifically mentioned in this section, except that a tabular and classified statement was required of the policies in force, showing the ages and years of issue in such a manner as to enable the Comptroller to make or have made a valuation of the outstanding policies.

No standard of valuation was prescribed; blank forms were how-

ever printed, under which classified tables of policies were returned by the companies for several years.

This statute embodied the main Life insurance laws in force on the organization of the Insurance Department in 1860.

A. D. 1866.

During this year the first act was passed which relieved the Superintendent from the personal duty of fixing upon a rate of Interest and table of Mortality.

By chapter 785, § 1, Laws of 1866, the English Life Table No. 3, Males, at five per cent interest, was fixed upon as the legal standard. See *Sess. Laws*, 1866.

A. D. 1868.

The Act of 1866 was superseded by the one of 1868 (*chap. 623, § 1*), which fixed upon the American Table of Mortality and four and a half per cent interest. This Act was passed under the circumstances and for the reasons detailed in my annual Report of 1869. See p. lxxxii, *Life Report*.

The practical results of these two standards ran very nearly together, the higher rate of interest in the English Table of one-half per cent which diminished the reserve, being offset by the larger mortality of the English Life Table, as compared with the American Experience.

The existing statute of New York is as follows:

"§ 13. * * * It shall also be the duty of the said Superintendent, at least once in every five years, and annually, in his discretion, to make valuations of all the outstanding policies, additions thereto, unpaid dividends and all other obligations of every American Life insurance company transacting business in this State; and for the purposes of such valuations, and for making special examinations under the seventeenth section of this act, and for valuing registered Life and other policies under chapter seven hundred and eight of the laws of eighteen hundred and sixty-seven, the rate of interest assumed shall be four and a half per cent per annum, and the rate of mortality shall be that established by the American experience table, in which table the expectation of life and the numbers of living and dying at each age, from ten to ninety-five out of one hundred thousand persons living at age ten, are as stated in the schedule hereto annexed.

The Superintendent may, in his discretion, vary the above standards of interest and mortality, in cases of companies from foreign countries, and in particular cases of invalid lives or other extra hazards. The Superintendent may also, in his discretion, value policies in groups, use approximate averages for fractions of a year and otherwise, and calculate values by the net, the actual or the gross premiums or otherwise, deducting, in cases of gross valuations, from the gross value of future premiums, one-sixth thereof for future expenses and contingencies. (Schedule follows, containing the Table.)

Laws of 1853, chap. 463, § 13, as amended by Laws of 1866, chap. 785, § 1, and by Laws of 1868, chap. 623, § 1. Wolford's Ins. Laws, p. 484.

The Portsmouth, or *Northampton*, Table of Mortality, at six per cent, singularly enough, is still the standard for determining the

gross present sum payable in commutation to tenants for life by the courtesy or in dower, under Rule 85 of the Supreme Court of this State.

Population, census of 1870, is.....	4,382,759
Area, square miles.....	46,085
Number of Life insurance companies	41

CALIFORNIA.

The rule in this State is the *American Experience Table, four and a half* per cent interest, as provided in the following statute :

A. D. 1870.

§ 1. Every Life insurance company organized under the laws of this State shall, on or before the first Monday in January of each year, furnish the insurance commissioner the data necessary for determining the valuation of all its policies outstanding on the thirty-first day of December next preceding, which said valuation shall be based upon the rate of mortality as established by the American experience life table. The rate of interest to be assumed shall be four and one-half per centum per annum. For the purpose of making such valuation the insurance commissioner of this State is authorized to employ a competent actuary, whose compensation for such valuation shall be three cents for each thousand dollars of insurance, to be paid by the respective companies for which the valuation is made.

Section 1 of the act approved April 4, 1870, entitled "An act to provide for the official valuation of Life insurance policies;" Sess. Laws 1869-1870, chap. DLX, p. 859; Wolford's Supplement, pp. 8 and 9.

§ 2. When the certificate of the insurance commissioner, of the official valuation of the policies as provided in section one of this act, issued to any company organized under the laws of this State, shall not be accepted by any other State, in lieu of a valuation of the same by the insurance officer of such other State, then all companies organized under the laws of such other State, doing business in this State, shall be required to have a separate valuation made, under the authority of the insurance commissioner of this State, as in this act provided.

Same act, § 2; Laws 1869-1870, p. 860.

Population, census of 1870	560,247
Area, square miles	188,981
Number of Life insurance companies.....	2

KANSAS.

This State has adopted the *American Experience Table at four and a half* per cent interest, as embodied in the following section of the act of 1871 :

A. D. 1871.

§ 14. It shall be the duty of the said superintendent, once in three years, to make, or cause to be made, net valuations of all the outstanding policies, additions thereto, unpaid dividends, and all other obligations of every Life insurance company transacting business in this State; and for the purpose of such valuations, and for making special examinations of the condition of Life insurance companies, as

provided in the laws of this State relating to Life insurance companies, and for valuing all policies of whatever description, and for any purpose whatever, the rate of interest shall be four and one-half per cent per annum, and the rate of mortality shall be established by the tables known as the American experience tables ; *provided*, that whenever the laws of any other State of the United States shall authorize a valuation of Life insurance policies by some designated State officer, according to the same standard as herein provided, or some other standard which will require a reserve not less than the standard herein provided, the valuation made according to the said standard by such officer of the policies and other obligations of any Life insurance company not organized under the laws of this State and certified by said officer, may be received as true and correct, and no further valuation of the same shall be required of such company by the superintendent of insurance ; the superintendent may, in his discretion, value policies in groups, and use approximate averages for portions of years and otherwise, but he shall in all cases calculate values by net premiums ; the superintendent may, in his discretion, vary the above standard of interest and mortality in cases of companies from foreign countries, and in particular cases of invalid lives or other extra hazards.

Section 14, chap. 8, of the act entitled "An act to establish an Insurance Department in the State of Kansas, and to regulate the companies doing business therein." Approved March 1, 1871, and published March 9, 1871; Sess. Laws 1871, p. 219, chap. XCIII; Wolford's Supplement, p. 37.

Special provisions relating to personal examinations are made by sections 7 to 13 of said act.

Sections 50 to 53 regulate the issue of Registered life policies which are to be valued by the *American Experience Table* at *four and a half* per cent.

Wolford's Supplement, pp. 49, 50.

Population, census of 1870	364,399
Area, square miles	120,000
Number of Life insurance companies.....	1

KENTUCKY.

The State of Kentucky has adopted the *American Experience Table* at *four and a half* per cent interest, as provided by the following laws :

A. D. 1870.

§ 13. Upon some day in each year designated by him, the commissioner shall calculate the existing values of all outstanding policies of Life insurance in companies authorized to make insurance on lives in this State, according to the standard designated and established by the laws of this State ; *provided, however*, that if any company, incorporated by any State where a regularly organized insurance bureau or department exists, shall furnish a certificate, under seal, in due form, of the insurance commissioner or Superintendent, setting forth the existing values of all its outstanding policies, such certificate shall be received as evidence by the insurance commissioner of this Commonwealth, and no valuation of the policies of such company shall be made by him. The cost of making every valuation under this section shall be assessed on the company whose policies are so valued.

Section 14 of the act entitled "An act to establish an Insurance Bureau."
Approved March 10, 1870.

§ 29. When the actual funds of any Life insurance company doing business in this Commonwealth are not of a net cash value equal to its liabilities, counting as such the net value of its policies, according to the "American experience" rate of mortality, with interest at four and one-half per centum per annum, it shall be the duty of the insurance commissioner to give notice to such company and its agents to discontinue issuing new policies within this Commonwealth until such time as its funds have become equal to its liabilities, valuing its policies as aforesaid. Any officer or agent who, after such notice has been given, issues a new policy from and on behalf of such company, before its funds have become equal to its liabilities as aforesaid, shall forfeit, for each offense, not exceeding one thousand dollars.

Wolford's Supplement, pp. 49 and 50. Section 29 of the act entitled "An act for the incorporation and regulation of Life Insurance Companies." Approved March 10, 1870. Wolford's supplement to General Insurance Laws of the United States, p. 74.

A. D. 1871.

An act was passed in this State during the present year, entitled "*An act to authorize Life insurance companies to make special deposits of securities in the Insurance Department.*" This act regulates the issue of Registered policies which are to be valued by the legal standard.

§ 4, *Wolford's Supplement Ins. Laws, p. 100.*

Population, census of 1870.....	1,320,011
Area, square miles.....	40,500
Number of Life insurance companies	2

MISSOURI.

This State has adopted the *American Experience* standard of mortality, with *four and a half* per cent interest, as follows:

A. D. 1869.

§ 29. It shall be the duty of said superintendent, once in every five years, to make or cause to be made, valuations of all outstanding policies, additions thereto, unpaid dividends and all other obligations of every American Life assurance company doing business in this State, and for the purpose of such valuation, and for making special examinations under the forty-first section of this act, the rate of interest assumed shall be four and a half per cent per annum, and the rate of mortality shall be that established by the American experience table, in which table the expectation of life and the numbers of living and dying at each age, from ten to ninety-five out of one hundred thousand persons living at age ten, are as stated in the schedule hereto annexed. The superintendent may, in his discretion, value policies in groups, and use approximate averages for fractions of years and otherwise, but he shall in all cases calculate values by the net premiums. [Schedule of the Table annexed.]

Section 29 of the act entitled "An act for the incorporation and regulation of Life Assurance Companies." Approved March 4, 1869. Wolford's Ins. Laws, pp. 368, 369; Sess. Laws 1869, p. 35-37.

See section 41, same act (*Sess. Laws 1869, p. 40*), for the provisions relating to personal examinations of Life companies and the proceedings thereon.

A. D. 1871.

§ 2. * * * Prior to the first day of January, 1871, the Superintendent shall make or cause to be made, in the manner provided by sections twenty-nine and forty-one of an act entitled "*An act for the incorporation and regulation of Life Assurance Companies,*" approved March 10, 1869, an examination and valuation of the assets and liabilities of every Life insurance company doing business in this State, which has not been heretofore examined by him, or under his direction; and if said Superintendent shall be satisfied, after such examination and valuation is made, that any company is in an unsound condition, or that its actual assets are less than all its liabilities, he shall proceed against it as provided by law in the case of unsound life insurance companies. The costs of making the examination and valuation herein designated shall in each case be assessed upon and paid by the company examined. * * * *

Section 2 of the act approved March 24, 1870, entitled "Insurance, department of, An act to amend sections seven, eleven, thirteen, sixteen and seventeen of an act entitled 'An act to create an insurance department.'"
Approved March 4, 1869; Sess. Laws 1870, p. 51.

Population, census of 1870.....	1,721,295
Area square miles	67,380
Number of Life insurance companies	8

MICHIGAN.

This State has also adopted the *American Experience Table of Mortality*, with *four and a half* per cent interest, as its standard for Life insurance valuations and calculations, as per the following statutes :

A. D. 1869.

§ 17. No policy of insurance on life, issued after this act shall take effect, by any company organized under the laws of this State, shall be forfeited or become void by the non-payment of any premium thereon, after the first, any further than as follows : The net value of the policy, when the premium becomes due and is not paid, shall be ascertained according to the "American experience table" rate of mortality, with interest at four and one-half per centum per annum. Three-fourths of such net value shall be considered a net single premium of the whole life insurance, and the amount it will insure shall be determined according to the age of the party at the time when the unpaid premium became due, and the assumption aforesaid in regard to interest and rate of mortality ; but if no application be made to the company for such paid-up policy within one year after default shall have been made in payment, then all liability on the part of the company on the policy on which the party is in default shall cease.

§ 18. Every company doing a business of life insurance within this State shall, annually, in the month of January, furnish to the Secretary of state, the data necessary for determining the amount of all its liabilities and the valuation of all its outstanding policies, to be made by the Secretary of state or under his authority ; and, in making such valuation, the rate of interest to be assumed shall be four and one-half per centum per annum, and the rate of mortality shall be that established by the "American experience life table," as shown in the schedule hereto annexed ; and such company shall pay to the Secretary of state, as a compensation for such estimate, one cent for each thousand dollars insured ; *provided*, that where, by the laws of any other State, an annual valuation is required to be made by an insurance commissioner or other State officer, the official certificate of any such commissioner or officer, being filed with the Secretary of state, and showing the annual official valuation of the policies of any company doing business within such State, and showing also the basis of such valuation, shall be sufficient, and stand in the place of any valuation of the policies of such company by or under the directions of the Secretary of state of this State ; but no company shall be permitted to transact business within this State, unless the amount of its assets shall equal the net value of all its outstanding obligations, as determined according to the assumptions in regard to rates of interest and mortality as herein-

before provided ; and in case the assets of any company, transacting business within this State, shall at any time be less than is required by the provisions of this act, the Secretary of state shall serve a written notice upon the person designated by such company to receive service of process under the laws of this State, or shall address such notice by mail to the principal office of such company, and publish the same at least three times in some newspaper circulated daily in this State ; and if, after the expiration of ten days from the service or publication of such notice, any agent or officer of such company shall receive applications for policies, or issue policies, while such deficiency of assets exists, and the costs of giving such notice remain unpaid by such company, he shall be subject to the penalties provided in section ten of this act ; *provided, further,* that when the certificate of the Secretary of state, of the official valuation of the policies issued by any company organized under the laws of this State, shall not be accepted by any other State in lieu of a valuation of the same by the insurance officer of such other State, then all companies organized under the laws of such other State shall be required to have a separate valuation made under the authority of the Secretary of state of this State, as herein provided. [Schedule of table of mortality annexed.]

Sections 17 and 18 of an act entitled "An act in relation to Life Insurance companies transacting business in this State," approved March 30, 1869; Wolford's Ins. Laws, pp. 303, 304 and 308; Sess. Laws, 1869, No. 77, p. 136.

For provisions relating to special examinations, see § 12, same act.

Population, census of 1870,	1,184,069
Area square miles	56,243
Number of Life insurance companies	1

WISCONSIN.

The State of Wisconsin has adopted the *American Experience Table*, assuming interest at the rate of *four and a half* per cent.

A. D. 1870.

§ 10. When the actual funds of any Life insurance company doing business in this State are not of a net value equal to the net value of its policies, according to the American experience table of mortality, with interest at four and one-half per cent per annum, it shall be the duty of the Secretary of State to give notice to such company and its agents to discontinue issuing new policies within this State, until such time as its funds have become equal to its liabilities, valuing its policies as aforesaid. * * * * *

Section 10 of the act entitled "An act to regulate the business of Life Insurance," approved March 14, 1870. Wolford's Supplement U. S. Ins. Laws, p. 227.

Population, census of 1870.....	1,054,670
Area, square miles.....	53,924
Number of Life insurance companies.....	1

MASSACHUSETTS.

A. D. 1855.

By chap. 124, Laws of 1855 (Sess. Laws, p. 569 to 572) an act was passed entitled "*An act to establish a Board of Insurance Commissioners.*"

A board of three commissioners was constituted with full powers for making special and general examinations, and of initiating legal proceedings in cases of insolvency. The commissioners were re-

quired to report annually in the month of December, to the Secretary of the Commonwealth.

No special provisions were enacted for defining the liabilities of Life insurance companies.

A. D. 1858.

By chap. 177, Laws of 1858 (Sess. Laws, p. 152), an act was passed entitled "*An act for the better establishment of the Board of Insurance Commissioners.*"

The board was reduced from three to two commissioners. It was further provided by the second section of said act as follows:

§ 2. * * * And it shall be the duty of said commissioners to calculate the existing value, on some day in every year designated by them, of all outstanding policies of Life insurance in companies authorized to make insurance on lives in this Commonwealth; and such calculated values shall be included by the insurance commissioners in their annual report to the legislature. All companies making insurance upon lives, or their agents in this Commonwealth, shall furnish to the commissioners an attested statement, certified in the same manner in which their returns are now required to be certified, setting forth in form the number, date and amount of each policy, and the age of the insured at the period of its date, in default whereof the said companies or their agents shall be liable to the same penalties as are imposed by law for neglect to make returns.

Id., § 2, *Sess. Laws*, p. 153.

Here, for the first time in Massachusetts we find provisions relating to State valuations of Life insurance policies, but no Table of Mortality was prescribed or rate of interest fixed by statute.

A. D. 1861.

In the celebrated non-forfeiture law of 1861, we first find any allusion in Massachusetts statutes to Tables of Mortality and Rates of Interest; this act, for the purposes of *surrender values* only, fixed upon the *Actuaries Table* at four per cent.

§ 1. No policy of insurance on life, issued on and after the tenth day of May in the year eighteen hundred and sixty-one, by any company chartered by the authority of this Commonwealth, shall be forfeited, or become void, by the non-payment of premium thereon, any further than regards the right of the party insured therein to have it continued in force beyond a certain period, to be determined as follows, to wit: the net value of the policy, when the premium becomes due and is not paid, shall be ascertained according to the "combined experience" or "actuaries" rate of mortality, with interest at four per centum per annum, after deducting from such net value any indebtedness to the company or notes held by the company against the insured, which notes, if given for premium, shall then be canceled; four-fifths of what remains shall be considered as a net single premium of temporary insurance, and the term for which it will insure shall be determined according to the age of the party at the time of the lapse of premium and the assumptions of mortality and interest aforesaid.

*Laws of 1861, chap. 186, § 1, pp. 495, 496.
See also the second section of this Act, id., p. 496.*

A. D. 1863.

During this year, 1863 (April 13th), an act was passed, entitled "*An act concerning Life insurance,*" which provided as follows:

"When the actual funds of any life insurance company doing business in this Commonwealth are not of a net cash value equal to its liabilities, counting (as such) the net value of its policies according to the rule of valuation adopted in chapter 186 of the act of 1861, it shall be the duty of the insurance commissioner to give notice to such company, and its agents, to discontinue issuing new policies within this Commonwealth until such time as its funds have become equal to its liabilities, valuing its policies as aforesaid. And any officer or agent who shall, after such notice has been given, before its funds have become equal to its liabilities as aforesaid, issue a new policy from and on behalf of such company, shall be subject to the penalties provided in chap. 58, sec. 77, of the general statutes."

Act of 1863, Sess. Laws, p. 458; Wolford's Ins. Laws, p. 271.

With the exception of the act in the State of Georgia, hereinafter alluded to, this Massachusetts act of 1863 was, so far as my information extends, the first attempt by any legislative body to fix upon a specified Table of Mortality and rate of interest to be assumed in determining the amount of reserve included as a debit among the liabilities of a Life insurance company.

A. D. 1866.

By chap. 255 (passed May 23) of the laws of this year, the office of Insurance Commissioners was abolished after the first of July then next, and one commissioner was substituted in lieu of the old board of two commissioners.

Sess. Laws 1866, chap. 255, p. 243.

On the 16th day of February, 1866 (Sess. Laws, chap. 33, p. 23), an act was passed, entitled "*An act in relation to the distribution of surplus funds of Life insurance companies,*" the first and second sections of which enacted in substance as follows:

§§ 1 and 2. Life insurance companies which do business upon the principle of mutual insurance, or the members of which are entitled to share in the surplus funds thereof, may make distribution of such surplus as they have accumulated, annually, or once in two, three, four or five years, as the directors thereof from time to time determine. In determining the amount of the surplus to be distributed, there shall be reserved an amount not less than the aggregate net value of all the outstanding policies, said value being computed by the "Combined Experience" or "Actuaries" rate of mortality, with interest at four per cent.

Act of 1866, Sess. Laws, p. 3, §§ 1, 2; Wolford's Ins. Laws, p. 257.

Population, census of 1870.....	1,457,355
Area, square miles.....	7,500
Number of Life insurance companies.....	6

CONNECTICUT.

This State in July last adopted the old *Actuaries* Table at four per centum interest, allowing however, to Connecticut companies only, an impairment equal to one-fourth of a company's liabilities,

before the Insurance Commissioner is *obliged* to apply for the appointment of a receiver or trustee ; but allowing him, in *his discretion*, to apply, when the impairment ranges less than one-fourth of the liabilities, including of course, as a portion of the liabilities, the statute re-insurance fund ;— the Company so impaired being obliged to stop all further dividends to either stock or policyholders, and to issue no new policies so long as the impairment continues.

A. D. 1871.

§ 23. Upon receipt of such report the commissioner shall, without delay, make a valuation of the policies of each company, and ascertain the amount of re-insurance reserve proper to be held on account thereof. He shall for this purpose assume the rate of mortality shown by the so-called actuaries or combined experience table, and four per cent compound interest; and he shall value only net premiums.

Section 23, chap. 5, of the act entitled "An act in addition to and in alteration of 'An act concerning communities and corporations,'" approved July 27, 1871.

§ 28. If it shall appear from any report, valuation or examination, as herein provided, that the assets of any company chartered by this State to grant insurances or make contracts contingent upon lives, are less than its liabilities, or if it shall fail to comply with any requirements of this act, the commissioner shall forthwith notify such company to cease the issue of new policies, and the payment of dividends to stock and policyholders until such time as the deficiency shall be supplied ; and he may, at his discretion, bring his petition to the court of probate for the district in which the principal office of such company is located, setting forth the facts upon which it is founded, and praying for an appointment of a trustee to take possession of the property of such company for the benefit of its creditors : such trustee, if appointed, shall proceed as directed by section twenty-nine of this act.

Sections 24 and 25, provide for special personal examinations of Life insurance companies both in and out of Connecticut.

§ 29. In case it shall appear that the assets are less in amount than three-fourths of the liabilities of such company, the commissioner shall, without delay, bring his petition to the court of probate for the district in which the principal office of such company is located, in the manner and form provided in section twenty-eight of this act; and the court shall thereupon appoint a trustee, who shall file with said court his oath of office, and a bond in such amount with such security as the court may direct, and who shall take possession of all books, papers and property, and receive all moneys belonging to such company, and apply the same, under order of the court, to the settlement of all claims against it, and to the re-insurance of its risks in some company or companies of good standing, preference being given to companies chartered by this State. The trustee shall make a full report of his doings in the premises to the court appointing him; and the court shall, upon the re-insurance of its risks, and the transfer of its property for that purpose, declare the dissolution of the company by an order to be published for one month in a paper of general circulation published in the county where the company is located.

§ 30. Any company organized or incorporated in another State, or by the Government of the United States or of any foreign country, to grant insurances or make contracts contingent upon lives, before being admitted to do business in this State, and receiving the commissioner's license therefor, and on or before the first day of March in each year, shall furnish to the insurance commissioner a certificate of the proper officer of the State or Government by whose authority it is organized or incorporated, setting forth a true and full copy of its report to such officer of its condition upon the thirty-first day of December last preceding, a val-

uation of its policies and contracts by said officer, by a standard equivalent to that provided in section twenty-three of this act, and that the company has complied with all the laws of the State or government by whose authority it is organized or incorporated, and is authorized to transact business therein. If such certificate shall substantially furnish the information required from companies chartered by this State, and it shall appear therefrom that the company furnishing the same is solvent, and if it shall have complied with all other provisions of law necessary thereto, the commissioner shall thereupon issue his license to such company to transact business in this State for one year from the thirty-first day of December last preceding.

§ 31. In default of the certificate aforesaid, or if any other State or country shall refuse to license Life insurance companies chartered by this State to transact business in such other State or country upon a similar certificate from the commissioner of this State, no license shall issue to any company organized or incorporated in such other State to transact business in this State, until it shall have made a report in the manner and form required from companies chartered by this State, and until a valuation of its policies and contract shall have been made by the commissioners as hereinbefore provided.

§ 32. If it shall at any time appear to the satisfaction of the commissioner, from personal examination, or from any report or valuation, or certificate of the same, that any life insurance company, organized or incorporated in another State, or under the authority of the government of the United States, or of any foreign country, does not possess assets equal in amount to its liabilities ascertained as hereinbefore provided, he shall forthwith revoke his license to said company and to its agents to transact business in this State, and shall cause notice thereof to be published for one month in two newspapers of general circulation printed, one in the city of Hartford and one in the city of New Haven. License to such company to transact business may be re-issued when the commissioner shall become satisfied of its restoration to solvency.

Sections 28, 29, 30, 31 and 32 of the above act of July 27, 1871; Wolford's Supplement, pp. 21-23.

Population, census of 1870.....	537,454
Area, square miles.....	4,764
Number of Life insurance companies.....	9

MAINE.

This State has also followed Massachusetts in adopting the old *Actuaries* or *Combined Experience Table* at four per cent.

A. D. 1870.

Whenever it shall come to the knowledge of the commissioner that the actual funds of any Life insurance company doing business in this State, are not of a net cash value equal to its liabilities, including the net value of its policies according to the "combined experience" or "actuaries rate of mortality," with interest at four per cent per annum, it shall be his duty to give notice to such company and its agents to cease issuing policies within this State. The commissioner may have authority to purchase and use the life valuation tables adopted by the insurance department of Massachusetts for this and all purposes of valuation under this act.

Section 18 of the act entitled "An act concerning insurance and insurance companies." Approved March 21, 1870, chap. 156, Sess. Laws, pp. 115, 120.

Population, census of 1870.....	626,915
Area, square miles.....	32,628
Number of Life insurance companies	1

NEW HAMPSHIRE.

New Hampshire has also adopted the same standard as Massachusetts, the *Actuaries* or old *Experience Table* at *four* per cent.

A. D. 1870.

§ 1. That no Joint-Stock insurance company not organized under the laws of this State, shall be permitted or allowed to transact the business of such company in this State, unless it shall have a *bona fide* paid up capital invested in securities readily convertible into cash of at least one hundred thousand dollars, nor unless such company shall have in addition to such capital assets equal in amount to all its outstanding liabilities, reckoning fifty per cent of premiums on outstanding fire risks, the whole amount of premiums on marine risks, and the premium reserve on life risks, based on the actuaries table of mortality, with interest at four per cent as a liability; *provided*, that the insurance commissioner may, at his discretion, license any company to do business in this State, whose impairment of capital does not exceed twenty per cent on the above rate; nor shall any Mutual, Fire or Life insurance, or Co-operation insurance company, association or society not organized under the laws of this State, be permitted or allowed to transact the business of such company in this State, unless it possesses assets amounting to one hundred thousand dollars, invested in securities readily convertible into cash, nor unless it possesses such assets equal to all its outstanding liabilities (including re-insurance to be estimated as in case of Joint-Stock insurance companies above named, and including the amount of guarantee capital as a liability); nor until all the laws relating to insurance companies of other States enacted by this State shall have been complied with.

Section 1 of the act entitled "An act in relation to insurance companies and their agents." Approved July 2, 1870; Sess. Laws, chap. 1, p. 395.

Population, census of 1870.....	318,300
Area, square miles.....	9,411
Number of Life insurance companies	None.

ILLINOIS.

Illinois is the only State out of New England which has adopted the old *Actuaries* Table at *four* per cent interest, although its legal rate of interest ranges from *six* to *ten* per cent, and its actual average business rate is about *nine* per cent.

A. D. 1869.

§ 10. Where the actual funds of any Life insurance company, doing business in this State, are not of a net value equal to the net value of its policies, according to the "combined experience" or "actuaries" rate of mortality, with interest at four per cent per annum, it shall be the duty of the Auditor to give notice to such company and its agents to discontinue issuing new policies within this State, until such time as its funds have become equal to its liabilities, valuing its policies as aforesaid. * * * * *

Section 10 of the act entitled "An act to organize and regulate the business of Life Insurance in the State of Illinois." Approved March 26, 1869. Wolford's Ins. Laws, p. 136; Sess. Laws 1869, p. 229-235.

Population, census of 1870.....	2,539,891
Area, square miles.....	55,405
Number of Life insurance companies	4

IOWA.

This State has a double standard, *English Life Table No. 3*, at five per cent interest, or the *Actuaries Combined Experience Table* of mortality, at four per cent, as provided in the following section:

§ 9. As soon as practicable after the filing of said statement of any company organized or doing business under the laws of this State, in the office of the Auditor of State, he shall proceed to ascertain the net cash value of each policy in force, upon the basis of the New York standard of valuation of life policies, it being Dr. Farr's English life table No. 3, for males, with interest at five per cent, or actuaries combined experience table of mortality, with interest at four per cent; but in case such valuation has been made in New York, or any other State, upon the basis above specified, a certificate of the Auditor, comptroller, or chief financial officer of such State, shall be taken by the Auditor of this State as sufficient evidence of the valuation of such policies, and of the amount so required for such re-insurance, and for the purpose of making such valuations. When not already done as aforesaid, the Auditor may employ a competent actuary to do the same, who shall be paid by the company for which the service was rendered, but nothing herein shall prevent any company from making said valuation herein contemplated, which shall be received by the Auditor upon such proof as he may determine. Upon ascertaining the net cash value of policies in force in any company organized under the laws of this State, or doing business in this State, and which has not made the deposit required in section four of this act, the Auditor shall notify said company of the amount, and, within thirty days after the date of such notification, it shall be the duty of the officers of such company to deposit with the Auditor the amount of such ascertained valuation of all policies within this State in stocks of the United States or of this State, or any other State of this Union, or in bonds and mortgages on real estate within the limits of this State, or within the State where such company is located, of at least double the value loaned thereon; *provided*, that no Joint-Stock company organized under the laws of this State, or doing business therein, shall be required to make such deposit until the cash value of the policies in force, as ascertained by the Auditor, exceeds the amount deposited by said company under section two of this act; *and provided*, that foreign companies doing business in this State are not required to make a deposit in this State, provided such deposit has been made in the State where located, or in any other State, when they shall have complied with section four of this act.

Section 9, chap. 173 of the act approved April 8, 1868, entitled "An act to regulate Life insurance companies." Wolford's Ins. Laws, pp. 179, 180; Sess. Laws 1868, p. 251.

Section 12 of said act provides for special personal examinations of any Life insurance company doing business in the State of Iowa.

GEORGIA.

A. D. 1859.

During this year an act was passed in this State, entitled "*An act to regulate the agencies of foreign Insurance Companies, and to provide for the appointment of an Insurance Commissioner.*" Approved Dec. 12, 1859.

See Hunt's Merchants' Mag., vol. 42, 1860, p. 623.

The second section of this act provided, among other things, for the contents of the annual statement, among which were, that life companies should furnish the data for valuations:

"8th. The amount of life insurance premiums received during the preceding year for whole life policies, the amount for temporary policies and the amount of other policies, the whole amount insured and at risk on the 31st day of December preceding, or at the end of the last fiscal year, on temporary life policies, and the amount at risk on the whole life policies issued for a single premium, or for which the company have received full payment, with the policyholders, on the 31st December preceding, or at the end of their last fiscal year, and the amount at risk on whole life policies for which a uniform, annual, semi-annual, or quarterly premium is payable, with the several years for which each portion of this amount has been issued, and the amount for each of these years, the table of premium charged for different ages, and the average age of the insured for each year when the policies were taken; and also such particulars of all other contracts for insurance, or endowments or annuities, that were in force on the 31st day of December preceding, or at the end of their last fiscal year, as are needed to determine the present worth of their liabilities; or, instead of these requisitions, any other statement of their future liabilities that will enable the commissioner to determine their present worth, etc."

The following is a copy of the fourth section of said act:

§ 4. Nor shall he issue a license to any agent or agents of any life insurance company, unless he is satisfied that the cash value of their assets exceeds all dues and claims against the company, and the calculated present worth of all their future liabilities, counting the rate of mortality at twenty-five per cent above the average of the best tables, and the rate of interest at four per cent, and the annual expense at the percentage paid by the company in the preceding year.

This section is, I believe, the first attempt in any country to fix upon a legal standard for the valuation of life insurance policies by the State. The responsibility and honor of this laudable effort are due to that eminent scholar and actuary, Prof. C. F. McCay (now residing in Baltimore), and who had constructed a table of mortality in accordance with the provisions of this act, which table is minutely explained in a series of elaborate articles (Nos. 1 to 10), published in Hunt's Merchants Magazine for the years 1860 and 1861.

The act proving to be unsatisfactory to the insurance companies, action under it was suspended by the legislature and it never went into practical operation. Historically considered, however, the Act is one of great interest as the pioneer enactment of a legislative actuarial basis for testing the solvency of Life insurance companies.

RECAPITULATION.

The following is a statement of the names of the various States which have adopted the *American Experience Table*, at *four and a half* per cent interest, and of those also which have adopted the *Actuaries' or old Combined Experience Table*, at *four* per cent interest, as State standards of solvency, with the population, area, and number of Life insurance companies in said States respectively:

TABLE No. 1.
American Experience Table (4½ per cent).

NAME OF STATE.	Population.	Area. (sq. miles.)	No. of Life Ins. co's.
1. New York	4,382,759	46,085	41
2. California	560,247	188,981	2
3. Kansas	364,399	120,000	1
4. Kentucky	1,320,011	40,500	2
5. Missouri	1,721,295	67,380	8
6. Michigan	1,184,069	56,243	1
7. Wisconsin	1,054,670	53,924	1
Total (7 States)	10,587,450	573,113	56

TABLE No. 2.
Actuaries or old Combined Experience (4 per cent).

NAME OF STATE.	Population.	Area. (sq. miles.)	No. of Life Ins. co's.
1. Massachusetts	1,457,355	7,500	6
2. Connecticut	537,454	4,764	9
3. Maine	626,915	32,628	1
4. New Hampshire	318,300	9,411	0
5. Illinois	2,539,891	55,405	4
Total (5 States)	5,479,915	109,708	20

The population has been taken from newspaper reports of the recent census, and may not be entirely accurate.

LEGAL RATES OF INTEREST.

The above summary gives the existing laws of the different States of the Union which have, up to this date, established legal standards of Mortality and Interest.

In connection therewith it is important to know what are the *existing laws* of the various States regulating the legal Rates of Interest, the penalties for usury, and the actual average rates of business interest received on various classes of loans and investments. I have accordingly, with considerable labor and care, collected the following information on this subject from the several States and Territories. In order to avoid errors and to allow an opportunity for checking them, I have given specific references to the Statutes and in many cases copied them literally, as affording more full and satisfactory information to both lawyer and layman.

ALABAMA.

In this State the statute on the subject of interest is as follows:

§ 1827 (1519). *Rate of interest fixed at eight per cent.* The rate of interest upon the loan or forbearance of money, goods or things in action, is eight dollars upon one hundred dollars for one year; and at that rate for a greater or less sum or a longer or shorter time.

Revised Code of Alabama, prepared by A. J. Walker, 1867, part II, title 3, chapter 2; p. 406, § 1827.

§ 1831 (1523). *Interest on usurious contracts cannot be collected; and, if paid, to be deducted from the principal due.* All contracts for the payment of interest upon the loan or forbearance of goods, money, things in action, or upon any contract whatever, at a higher rate than is prescribed in this chapter are usurious and cannot be enforced except as to the principal; and if any interest has been paid the same must be deducted from the principal, and judgment rendered for the balancee only.

Id. § 1831, p. 406.

As to the actual business rate of interest in this State, Mr. Douglass Vass, a leading commission merchant in Mobile, writes to me, under date of August 3, 1871, as follows:

"Our banks, bankers and insurance companies, which do most of the lending of money to merchants, take off the face of the paper at the rate of eight per cent for the time the paper has to run, making the transaction at the rate of eight per cent discount per annum, which is equal to about nine per cent interest. For instance, if a note at twelve months, for one thousand dollars, is offered to me for discount, I would take off eighty dollars, and pay the borrower nine hundred and twenty dollars. Nine per cent interest on what he gets (\$920) would be \$82.80. Although eight per cent is the legal rate, yet, money, during the business season and tight times, is loaned at two to three per cent per month; but such transactions are made on the honor of the borrower, and I have never known an instance in twenty-five years' business experience where any conflict or contention has occurred about the extra rate. As is usual, these excessive rates are paid only under extreme necessities."

ARKANSAS.

The Constitution of this State prohibits the passage of any usury law by the legislature.

§ 21. The General Assembly may, by general law, declare the legal rate of interest upon contracts in which no rate of interest is specified, but no law limiting the rate of interest for which individuals may contract in this State shall ever be passed.

Art. XV, Miscellaneous Provisions, § 21, Constitution of 1868, ed. of 1870, by James M. Pomeroy, p. 45.

§ 1. That the rate of interest upon all contracts and agreements, written or verbal, expressed or implied, for the payment of money, shall be six per cent per annum upon every hundred dollars, unless otherwise expressly stipulated by the parties, or unless otherwise provided by law.

Sec. 1 of the act entitled "An act to fix the rates of interest on money contracts, judgments, mortgages and other commercial paper." Approved July 13, 1868. Session Laws 1868, No. IX, p. 32.

§ 3. That in all contracts hereafter to be made, whether verbal or written, it shall be lawful for the parties to stipulate the rate and agree on any sum of interest that may be taken and paid upon any one hundred dollars of money loaned, or in any manner due and owing from any person or corporation to any other person or corporation in this State.

Id. § 3, p. 32.

§ 6. No plea of usury nor defense founded upon any allegation of usury shall be sustained in any court in this State. * * *

Id. § 6, p. 33.

Under date of August 14, 1871, Mr. J. B. Bond, of Little Rock, Ark., writes as follows in reference to the actual business rate of interest in that State:

"The announced 'bankable rate' on best paper is one and a half per cent per month; but little, if any, is loaned at that figure; hence, the borrower is forced to apply to the 'curbstone broker,' who charges him never less than two and a half per cent per month, generally five, according only to his necessities. Balances on accounts, notes for deferred payment for real estate, and similar debts, command ten per cent; but for cash transactions in legitimate business one and a half per cent per month is the lowest figure I can place. I know of no transactions at less than three per cent. It is fair, however, to say that twenty thousand dollars will most probably cover the existing loans at five per cent. I have submitted the above to Mr. S. H. Tucker, banker, and he approves the statements."

CALIFORNIA.

The statute in this State is as follows :

SECTION 1. When there is no express contract in writing fixing a different rate of interest, interest shall be allowed at the rate of ten per cent per annum for all moneys after they become due on any bond, bill, promissory note or other instrument of writing; and for money due on the settlement of accounts from the day on which the balance is ascertained, and for money received for the use of another; and the rate of interest on any judgment recovered before any court in this State for money lent, shall be seven per cent per annum.

Act of April 4, 1870, § 1, chap. 478; Session Laws 1869-70, p. 699.

§ 2. Parties may agree in writing for the payment of any rate of interest whatever, on money due or to become due, and it shall be allowed according to the terms thereof until the entry of judgment thereon; but whatever may be the rate of interest agreed upon, no judgment or decree in any court of this State shall draw interest at a rate to exceed seven per cent.

Chap. 429, § 2, Act of March 30, 1868; Session Laws p. 553.

§ 3. The parties may in any contract in writing, whereby any debt is secured to be paid, agree that if the interest on such debt is not punctually paid, it shall become a part of the principal, and thereafter bear the same rate of interest as principal debt.

Section 3, chap. 13, Act of March 13, 1850.

As to the business rate of interest now prevailing in this State, Mr. J. R. Dameron, a practicing lawyer in San Francisco, writes me, under date of August 5, 1871, as follows :

"The prevailing rate of interest is one per cent per month on short loans; often as high as one and a half per cent per month on short loans. Loans made on real estate for a year, or longer, from eight to twelve per cent per annum. Until lately, the rates of interest have been higher; present rates are owing to the large amount of capital in the savings banks, and the small demand for loans for improvements, as there is little or none going on, comparatively, at present. There are opportunities to loan money at as high rates as two to three per cent per month on mining stocks and poor collaterals, which is often done; but often the capital and interest are both lost."

CONNECTICUT.

In this State, unsuccessful efforts have been recently made to repeal or modify the usury laws, as a large amount of capital leaves the State annually for investment elsewhere at higher rates of interest.

AN ACT to restrain the taking of usury.

SECTION 1. *Be it enacted, etc.*, That no person upon any contract for the loan of money or goods, wares, merchandise, or any property whatever, shall take, directly or indirectly, more than the value of six dollars for the forbearance of one hundred dollars for a year, and after that rate for a greater or less sum or for a longer or shorter time.

General Statutes of Connecticut. Revision of 1866, p. 731, title LXVI.

In case of usury all the interest, legal and illegal, is forfeited.

See id., §§ 2, 3, 4, 5 and 6, pp. 732, 733.

DELAWARE.

The legal rate of interest in this State is six per cent.

SECTION 1. The legal rate of interest is six per centum per annum; and if any person shall directly or indirectly take for the loan or use of money more than six dollars for the loan or use of one hundred dollars for one year, and in that proportion, he shall forfeit and pay to any one who will sue for the same, a sum equal to the money lent, one-half for the use of the person so suing and the other half for the use of the State.

Revised Code of 1852, title Ninth, chap. 63, § 1, p. 183.

Mr. John H. Paynter, Secretary of state, writes under date of Aug. 10th, ult., that the business rate is the same as the legal rate.

FLORIDA.

When there is no agreement the rate is eight per cent; any conventional rate however is legal.

CHAPTER 1,562 [No. 29].

AN ACT to untrammele capital and to repeal all laws on usury.

Whereas, Money or its representatives, like other property and commodities thrown upon market for sale or loan, should no more than these be trammeled by law, but that an enlightened policy makes it judicious that its loan should be left to the laws of demand and supply, and to the sense of the mutual interest of loaner or borrower, therefore,

SECTION 1. *Be it enacted by the Senate and House of Representatives of the State of Florida, in General Assembly convened,* That hereafter it shall not be usury to loan or to borrow money, bonds or notes, at rates beyond that now allowed by law; *provided*, that in all cases where interest shall accrue without a contract having been made, and on judgments, the rates of interest shall remain as now fixed, or may be hereafter fixed by law.

Session Laws of 1866, 2d session, p. 27.

The legal rate is fixed at eight per cent where no agreement has been made fixing the rate.

Act of January 13, 1866; Session Laws, 1st session, 1866, p. 66.

Mr. Jonathan C. Greeley, the city tax collector of Jacksonville, Florida, writes to me under date of Sept. 2d, ult., that,—

“The prevailing interest is from ten to twelve per cent, though it ranges to thirty-six per cent. I have frequently loaned money for parties outside the State at twenty per cent per annum, with real estate security.”

GEORGIA.

ARTICLE V.—*Interest and Usury.* § 2023. Lawful interest in this State shall be at the rate of seven per cent per annum.

Code of Georgia, revised by D. Irwin, 1866, p. 404.

§ 2024. Usury is the reserving and taking, or contracting to reserve and take, either directly or by indirection, a greater sum for the use of money than the lawful interest.

§ 2025. The effect of usury is to annul and make void the contract for the usury; the lender having the right to recover the principal sum loaned, with legal interest. All titles to property made as a part of an usurious contract, or to evade the laws against usury, are void.

Id. p. 405; see, also, § 2026 to § 2031, inclusive.

Mr. R. H. Atkinson, Private Secretary to the Governor, writes to me from Atlanta, under date of Sept. 2d, ult., that,—

“The prevailing or average rate of interest which money will command among business men in this State, is from one to two per cent per month. Money can be loaned at these rates with good security.”

ILLINOIS.

The rate of interest upon all contracts and agreements, written or verbal, express or implied, for payment of money, shall be six per cent per annum upon every one hundred dollars, unless otherwise expressly stipulated by the parties, or unless otherwise provided by law.

Act of 1857, § 1, entitled “An act to legalize ten per cent interest when it is agreed upon between parties.” Sess. Laws, p. 45.

§ 2. That in all contracts hereafter to be made, whether written or verbal, it shall be lawful for the parties to stipulate or agree that ten per cent per annum, or any less sum of interest, shall be taken and paid upon every one hundred dollars of money loaned or in any manner due and owing from any person or corporation to any other person or corporation in this State.

Id. § 2, p. 46; also Gross' (3d ed.) Statutes of Illinois, chap. 54, pp. 370, 372.

§ 3. If any person or corporation in this State shall contract to receive a greater rate of interest than ten per cent upon any contract, verbal or written, such person or corporation shall forfeit the whole of said interest so contracted to be received, and shall be entitled only to recover the principal sum due to such person or corporation.

Sec. 3, id.; Sess. Laws of 1857, p. 46.

See, also, for other provisions, Gross' (3d ed.) Illinois Statutes, chap. 54, §§ 13 to 16, pp. 371, 372.

Mr. George W. Wade, of Chicago, a reliable authority, writes under date of July 31st, ult., that the average rate of actual business interest is nine per cent.

INDIANA.

SECTION 1. *Be it enacted, etc.*, That interest upon the loan or forbearance of money, goods or things in action shall be at the rate of six dollars a year upon one hundred dollars, and no greater rate of interest shall be taken, directly or indirectly, unless the agreement to pay a higher rate of interest be made in writing and signed by the party to be charged; but such rate of interest shall in no case exceed the rate of ten dollars a year on one hundred dollars. But it may be taken yearly or for any shorter period in advancee.

Chap. LXXII, Laws of 1867, p. 151: Act entitled "An act concerning interest on money, and to provide for recoupment of usurious interest."
Approved March 9, 1867.

All interest exceeding the rate of ten per cent per annum shall be deemed usurious and illegal as to the excess only, etc.

Id. § 2.

Gen. Nathan Kimball, of Indianapolis, writes under date of July 29th, that,—

"The prevailing or average rate of actual business interest which money will command is ten per cent. We could loan hundreds of thousands of dollars at ten per cent on first class real estate (mortgages) security, interest payable semi-annually."

IOWA.

The rate of interest shall be six cents on the hundred by the year on money due by express contract, unless a different rate be expressed in writing. * * *

Revision of 1860, title 13, chap. 72, art. 2, § 1787, p. 316.

§ 1788. Parties may agree in writing for the payment of interest not exceeding ten cents on the hundred by the year.

Id. p. 316.

Penalty for usury, forfeiture of ten per cent of contract to State for benefit of school fund, and forfeits all interest and costs.

Id. § 1791, pp. 316, 317.

Mr. John E. Henry, a lawyer in Davenport, writes under date of Aug. 1st, ult., that,—

"Money commands ten per cent interest, *clear*. In cases of money loaned by the savings banks and insurance companies the borrower furnishes an abstract of the title to the land offered as security, and pays the cost of conveyancing and recording, and foreclosing if necessary."

KANSAS.

SECTION 1. Creditors shall be allowed to receive interest at the rate of seven per cent per annum, when no other rate of interest is agreed upon, for all money after it becomes due; for money lent or due on settlement of account, from the day of liquidation of the same and ascertaining the balance; for money received for the use of another and retained without the owner's knowledge of the receipt; for money due and withheld by an unreasonable and vexatious delay of payment or settlement of accounts; for all money due and to become due for the forbearance of payment whereof an express promise to pay interest has been made; and for money due from corporations and individuals to their day or monthly employés, from and after the end of each month, unless the same shall be paid within fifteen days thereafter.

Chap. XCV, § 1, Sess. Laws of Kansas, 1871, p. 250, act entitled "An act to amend an act entitled an act regulating the interest of money."
Approved February 29, 1868.

§ 2. The parties to any bond, bill, promissory note or other instrument of writing for the payment or forbearance of money, may stipulate therein for interest receivable upon the amount of such bond, bill, note or other instrument, at any rate not exceeding twelve per cent per annum.

Chap. 51, Interest sec., General Statutes of Kansas, 1868, p. 525.

In cases of usurious contracts all the interest is forfeited, the principal alone is recoverable.

Sec. 4 id., p. 526; see, also, id. §§ 3, 5 and 6, same title, of Interest.

Messrs. *Crawford* and *Wright*, of Leavenworth, Kansas, inform me that twelve per cent is the "actual business interest."

KENTUCKY.

SECTION 1. Legal interest shall be at the rate of six dollars upon one hundred dollars for a year, and at the same rate for a greater or less sum and for a longer or shorter time.

Chap. LIII, Interest and Usury, § 1, Revised Statutes of Kentucky, p. 419.

The act approved March 14, 1871, makes it lawful to contract in writing for interest not exceeding ten per cent per annum.

If any rate is contracted for exceeding ten per cent, the whole interest is forfeited.

Id. § 5; see, also, id. §§ 3 and 4.

Mr. *John C. Bonnycastle*, of Louisville, writes under date of Aug. 1st ult., that "about nine per cent per annum has been, during the past two years, the average rate of interest paid on business transactions in Kentucky."

LOUISIANA.

§ 1883. All debts shall bear interest at the rate of five per cent from the time they become due, unless otherwise stipulated.

Revised Statutes of Louisiana, 1870, § 1883, of Interest, p. 373.

§ 1884. Article 2895 of the Civil Code shall be so amended that the amount of conventional interest shall in no case exceed eight per cent, under pain of forfeiture of the entire interest so contracted.

Id. p. 373.

§ 1886. The holder of any circulating note which may have been protested for non-payment shall be entitled to damages at the rate of twelve per cent per annum in lieu of interest until final payment, payable out of the general fund of the insolvent party.

Id. p. 373.

§ 1889. The owner of any promissory note, bond or written obligation for the payment of money to order or bearer, or transferable by assignment, shall have the right to collect the whole amount of such promissory notes, bonds or written obligations, notwithstanding such promissory notes, bonds or written obligations may include a greater rate of interest or discount than eight per cent per annum; provided, such obligations shall not bear more than eight per cent interest per annum after their maturities until paid.

Act of 1860.

§ 1890. "The banking institutions of the State of Louisiana" authorized to discount paper at the rate of eight per cent.

Id. § 1889, p. 374, Act of 1866.

Mr. L. F. Generes, banker, of New Orleans, one of the most reliable and competent authorities in that city, informs me through Col. Samuel Flower, under date of August 28th ult., as follows: "Good business or factors' paper, factors' acceptances of planters' drafts, have ranged during the past year from twelve to fifteen per cent; same, or other paper with collaterals, State securities, etc., has averaged about ten per cent. First-class mortgages have averaged about nine per cent. It is now impossible to get more than eight per cent for first-class mortgages (with vendor's lien), at least it is an exception to get more than that. In this connection, also, it is, perhaps, proper that I should mention the action of the directory of the Bank of America, one of our leading banks, a few days since, in reducing rate of interest for less than sixty days at six per cent, which fact I state without venturing any opinion as to how far they may be indicative of any permanent change, or of future rates."

MAINE.

SECTION 1. In the absence of any agreement, in writing, the legal rate of interest shall be six per cent per annum.

Chap. 124, § 1, "An act concerning the rate of interest." Approved March 11, 1870. Sess. Laws of 1870, p. 95.

Usury laws repealed by chapter 169.

Laws of 1870, Sess. Laws, p. 130.

Mr. *Mark Harden*, Acting Private Secretary of the Governor, writes under date of Augusta, August 8th, ult., that—

“ Money at the banks here on deposit is worth seven per cent; good paper, small amounts, on short time, the ruling price is eight per cent.”

MARYLAND.

SECTION 1. Interest may be charged or deducted at the rate of six per centum per annum, and the same may be calculated according to the standard laid down in Rowlett's tables.

Sec. 1, Art. XCV, Usury, Maryland Code, Public General Laws, vol. 1, p. 696.

Legal interest is recoverable; all the excess forfeited to the defendant.

Secs. 4 and 5, p. 697; see, also, §§ 2 and 5, id.

Mr. *Henry C. Wagner*, of Baltimore, writes, under date of July 29th, as follows:

“ Money commands, upon mortgage loans in Baltimore, eight to nine per cent, the former for long terms (three to five years), and the latter for short terms (one to two years); and in the counties of the State, nine to twelve per cent, according to margin and time. A ‘bonus’ of the amount of ‘extra interest’ for the whole time is deducted from the amount of mortgage, and interest at six per cent upon whole amount collected quarterly or semi-annually. This is the universal practice of capitalists and loan associations, and is considered safe against a plea of usury. ‘Call loans’ upon good collateral security are often made at low rates—four, five and six per cent; but our banks (State and national) receive for discounting good commercial paper, sixty days to four months, seven to nine per annum, according to agreement and the demand for money; it is very irregular.”

MASSACHUSETTS.

SECTION 1. When there is no agreement for a different rate of interest of money the same shall continue to be at the rate of six dollars upon one hundred dollars for a year, and at the same rate for a greater or less sum, and for a longer or shorter time.

Sec. 1, of “An act concerning the rate of interest.” Approved March 6, 1867. Chap. 56, Sess. Laws, p. 500.

§ 2. It shall be lawful to contract to pay, or reserve discount, at any rate, and to contract for payment and receipt of any rate of interest; *provided, however,* that no greater rate of interest than six per centum per annum shall be recovered in any action, except when the agreement to pay such greater rate of interest is in writing.

Sec. 2 of the same act.

Bonds issued by railroad or other corporations, under authority of law, may bear interest not exceeding the rate of seven per centum a year.

Act approved May 28, 1870; Sess. Laws, p. 213.

The prevailing actual business rate of interest is the same as that above provided for railroad and other corporate bonds — about seven per cent.

MICHIGAN.

The legal rate is seven per cent; parties may stipulate in writing for the payment of any rate of interest not exceeding ten per cent per annum.

Compiled Laws of Michigan, 1857, Vol. I, p. 42 (1814) sec. 2.

Plaintiff may recover the principal and legal interest, exclusive of the usury.

Id., p. 425 (1815), sec. 4.

Compound interest may be collected not exceeding the legal or conventional rate.

Act of 1869, Session Laws, p. 12, No. 11 entitled "An act relating to interest upon installments falling due upon written contracts."

Mr. William C. Green, Insurance Manager and Agent, of Detroit, writes, under date of August 2d, ult., as follows:

"I think that it is safe to say that the average rate of actual business interest which money will command is not less than ten per cent. Some few loans may be made on mortgages at a less figure, but almost any amount of money could be readily invested at ten per cent interest (payable semi-annually) on excellent real estate security. Bankers, in some localities readily obtain from one to three per cent per month on good business paper."

MINNESOTA.

SECTION 1. Interest for any legal indebtedness shall be at the rate of seven dollars upon one hundred dollars for a year, unless a different rate is contracted for in writing, and all contracts shall bear the same rate of interest after they become due as before, if it clearly appears therefrom that such was the intention of the parties; but no contract for a greater rate of interest than twelve dollars upon one hundred dollars for a year shall be valid for the excess of interest over twelve per cent.

Chapter XXIII, § 1, Revision of 1866 of Statutes of Minnesota, p. 226; Article, Interest of Money.

Mr. A. R. McGill, Private Secretary to the Governor, writes as follows, under date of August 23d, ult.:

"The prevailing rate of business interest on money is twelve per cent per annum. This is the rate charged by all of our banks."

MISSISSIPPI.

ART. 1. The legal rate of interest on all bonds, notes, accounts, judgments, and contracts, shall be six per cent per annum, but contracts may be made in writing for the payment of a rate of interest as great as ten per cent per annum. And if a greater rate of interest than ten per cent shall be stipulated for in any case, such excess shall be forfeited, on the plea of the party to be charged therewith; and all judgments and decrees founded on any contract, shall bear interest after the rate of the debt on which such judgment or decree was rendered.

Art. I, Chap. L, Revised Code of Mississippi, 1857, p. 370.

See also idem, p. 370, articles 2, 3 and 4.

Messrs. *Mathews & Arnold*, a leading firm of lawyers in Columbia, Miss., write, on the 9th day of Aug., ult., as follows:

"The average rate of business interest which money will command in this State we should say would be about ten per cent, though we cannot speak with confidence on this branch of the subject."

MISSOURI.

The rate where there is no agreement is six per cent.

Wagner's Statutes, Vol. II, § 1, p. 782.

The parties may agree in writing for as high a rate as ten per cent, and, also, for interest compounded annually.

Id. § 2, p. 783; 21 Mo. Rep. 432; 38 Mo. Rep. 461.

If more than the legal rate is contracted for the party loses all of the interest, and the same is forfeited to the county for the use of the common schools.

Id. § 5, p. 783.

Mr. *Henry W. Hough*, of St. Louis, a Fire and Life insurance officer, writes, under date of September 2d, ult., that,—

"Known business men can obtain what money they need from banks or savings institutions, short loans, at eight per cent; those not so well known pay ten during the winter; outside operators one and a half per cent per month in St. Louis. Take the State at large, the prevailing or average rate of actual business interest which money will command is ten per cent. On very choice city property, eastern capitalists will loan at nine and often at eight per cent."

NEBRASKA.

Rate ten per cent, if there is no agreement; parties may agree on rate not exceeding twelve per cent.

Revised Statutes of Nebraska, July 1, 1866, p. 241, article "Interest," as amended thereafter.

If illegal interest has been contracted for, principal only recoverable, and the defendant shall recover costs.

Id. § 5, p. 241.

Mr. *T. W. T. Richards*, a practicing lawyer at Omaha, writes under date of Aug. 14th, ult., that,—

"All bank loans are made at the rate of twelve per cent, and interest deducted in advance, and loans never made for a longer time than ninety days. The banks will only loan at this rate to their own depositors. Outsiders pay all the way up from twelve per cent per annum to five per cent per month. A very large amount of money is now being loaned to this class of persons on safe security at two to three per cent per month. In such cases the law is of course evaded in some one of the many ways, by which the lender is protected. Almost any amount of money can at present be loaned in Nebraska

upon the very best securities, both real and personal, at twelve per cent, and in advance. In Omaha and vicinity pretty safe securities at rates largely in excess of this. As to real estate securities in Nebraska, and the West generally, I must say that I regard them as quite as safe, and in some respects better, securities, than like securities in the older States. In the West property is constantly appreciating in value, owing to the very rapid development of the West; and what would today be a safe security for a specified amount of money, in five years, would be doubly safe."

NEVADA.

§ 4. When there is no express contract, in writing, fixing a different rate of interest, interest shall be allowed at the rate of ten per cent per annum for all moneys after they become due, on any bond, bill or promissory note, or other instrument of writing, on any judgment, recovered before any court in this Territory, for money lent, for money due on the settlement of accounts from the day on which the balance is ascertained, and for money received to the use of another.

Laws of 1861, chap. XXXIV, § 4, p. 100.

§ 5. Parties may agree, in writing, for the payment of any rate of interest whatever on money due or to become due on any contract. Any judgment rendered on such contract shall conform thereto, and shall bear the interest agreed upon by the parties, and which shall be specified in the judgment; *provided*, only the amount of the original claim or demand shall draw interest after judgment.

§ 5, *id. p. 100.*

From this State Mr. C. H. Belknap, Private Secretary to the Governor, writes from Carson City, Aug. 18th, ult., that,—

"The rate of interest varies from one and a half to two per cent per month."

NEW HAMPSHIRE.

§ 2. In rendering judgments, and in all business transactions where interest is paid or secured, it shall be computed and paid at the rate of six dollars on a hundred dollars for one year, unless a lower rate is expressly stipulated.

Sec. 2, chap. CCXIII, title, Judgments, General Statutes of New Hampshire, 1867, p. 433.

§ 3. If any person upon any contract receives interest at a higher rate than six per cent, he shall forfeit three times the sum so received in excess of said six per cent to the person who will sue therefor.

Id. § 3, p. 434.

Contract not invalid for the principal and legal interest.

Id. § 4, p. 434.

§ 5. Nothing in this chapter shall extend to the letting of cattle or other usages of like nature in practice among farmers, or to maritime contracts, as bottomry insurance, or course of exchange as heretofore used.

Id. § 5, p. 434.

Hon. Oliver Pilsbury, Insurance Commissioner, writes on the 30th day of Aug., ult., as follows:

"The average prevailing rate of 'actual business interest' at this time will not vary much from seven per cent. I think, however, that a gradual decline is going on, and the present indications are that six per cent will be reached."

NEW JERSEY.

The legal rate is seven per cent.

Chap. CLXXI, Laws of 1866. Approved March 15, 1866. Sess. Laws, p. 406, act entitled "A further supplement to the act entitled 'An act against usury,'" Nixon's Digest (4th ed.), Laws of New Jersey, 1709-1868, p. 439.

In case of an usurious contract principal may be recovered without any interest.

Act of 1864, p. 714; Nixon's Digest, p. 439

Mr. William L. Dayton, counselor, etc., of Trenton, N. J., writes under date of Aug. 7th, ult., that

"The prevailing or average rate of actual business interest in this State, is, I think the legal rate, seven per cent. This is of course on the best securities. More is no doubt sometimes obtained, seldom less. This is, however, merely an individual opinion. Money may command higher rates in other parts of the State than in this city."

NEW YORK.

The Revised Statues (*Vol I, p. 772*) allow the excess of interest over the legal rate of seven per cent to be recovered back, and declare any contract tainted with usury to be "*void*."

See chap. IV, title 3, §§ 1 to 8, pp. 771, 773, vol. 1, first ed.

NORTH CAROLINA.

The legal rate when there is no special contract is six per cent; for the loan of money only eight per cent is allowed by a special agreement in writing.

In case of an usurious contract the principal alone is recoverable; all the interest is forfeited.

Chap. 24, Laws of 1865, '66, p. 80.

Messrs. Bragg & Strong, one of the leading law firms of the State, write from Raleigh Aug. 25th, ult., that,—

"We have consulted with nearly all the bank officers in town, and with several persons having control of and lending money, and we are satisfied that twelve per cent per annum is an outside average figure. The banks themselves will lend from three to six months at eight per cent on a deposit of government securities, which can be converted into money at the day the money falls due; and private individuals will loan upon mortgage at eight per cent for a year or longer. We thought money would average throughout the State one and a half per cent per month, because in the transactions of individuals we had known so much larger rates to be demanded and paid, coupled with the fact that the ordinary bank operations range from one to one and a half per month. We are now satisfied that we were in error, and that eight to ten per cent per annum, secured by mortgage, is a fair rate."

Mr. *Kemp P. Battle*, counselor at law, also of Raleigh, N. C., writes as follows, Aug. 25th, ult.:

"The usual bank rates for thirty or sixty days are from one to one and a half per month, according to circumstances, but rates higher than these have, I think, ceased. When money is lent on mortgage on long time, I know some cases where by charging a bonus in the shape of a fee or commission, ten per cent per annum is realized. But in the case of companies whose business is not to bank or speculate, but merely to invest in first-class securities on time, eight per cent, the legal interest, is usual, and I know of divers cases where private individuals demand only that interest. In my opinion an insurance company should obey the laws of the land and demand only legal interest. In no other way can the confidence of the public be gained. In North Carolina the causes which have produced the present enhanced rates are of a temporary nature. Business will not justify for a long time their continuance. Debtors will be ruined if they are kept up."

OHIO.

SECTION 1. *Be it enacted, etc.*, That the parties to any bond, bill, promissory note, or other instrument of writing, for the forbearance or payment of money at any future time, may stipulate therein for the payment of interest upon the amount of such bond, bill, note, or other instrument of writing, at any rate, not exceeding eight per centum per annum, payable annually.

Sec. 1, of an act entitled "An act to amend 'An act fixing the rate of interest.'" Passed May 4, 1869. Sess. Laws, p. 91.

Rate, six per cent when there is no agreement.

Id. § 3, p. 92.

Mr. *W. F. Colburn*, Insurance Manager of Cincinnati, writes as follows:

"The prevailing or average rate of actual business interest is, or rather has been, nine per cent. For three or four months past money has been in the hands of bankers to an unusual extent, with small demand from their regular customers or outsiders, consequently, money can be readily obtained at from six to eight per cent. The general opinion is that this state of things will not continue longer than through the fall months. I have no doubt the old rates will prevail again, unless money flows in from outside sources."

OREGON.

The rate of legal interest is ten per cent when there is no rate stipulated, and in other specified cases. But on contracts interest at the rate of one per centum per month may be charged by express agreement of the parties, and no more.

Chap. XXIV, § 1, General Laws of Oregon, 1845-1864, compiled by M. P. Deady, p. 755.

In case of an usurious contract the principal is forfeited to the State for the benefit of the school fund of the county, and the plaintiff pays the costs of suit, the defendant escaping the payment of any interest.

Id. § 3, p. 756; see, also, id. §§ 2, 4 and 5.

Mr. *George P. Holman*, attorney at law, of Salem, Oregon, writes under date of Sept. 19th, ult., that

"The prevailing or average rate of actual business interest which money will command in this State is twelve per cent per annum, or one per cent per month."

Mr. *Henry H. Gilfry*, Private Secretary to the Governor, writes to the same effect, and also that, before the passage of the statute, it was customary to charge from twenty to twenty-five per cent per annum.

PENNSYLVANIA.

The lawful rate of interest for the loan or use of money in all cases, when no express contract shall have been made for a less sum, shall be six per cent per annum ; and the first and second sections of the act of March 2, A. D. 1723, entitled "An act to reduce the interest of money from eight to six per cent per annum," be and the same is hereby repealed.

No. 557, § 1, of "An act regulating the rate of interest." Approved May 28, 1858. *Sess. Laws*, p. 622; *Purdon's Digest*, Brightly, 1700-1861, p. 561, Article, Interest, § 1.

Commission merchants, in certain cases, may charge at the rate of seven per cent.

Purdon's Digest, § 3, p. 561; article, Interest.

The charters of some savings banks allow a rate of ten per cent.

The lender forfeits the excess of interest over the legal rate ; no other penalty.

Act of May 28, 1858, § 2.

Mr. *J. Morris Harding*, of Philadelphia, writes, September 1st ult., that

"The prevailing or average rate of interest is so unsettled in the several sections of the State, owing to various influences, that it is impossible to give a rate or even an approximation; *e. g.*, in Philadelphia the market closely follows New York; in Lancaster it is six per cent; in Titusville and oil regions eighteen per cent; in Pittsburgh ten per cent," etc.

Mr. *David W. Bell*, attorney at law, of Pittsburgh, writes, August 1st, ult., that

"The prevailing or average rate of actual business interest which money commands in this State at present (because it varies) is about eight per cent; but parties often get nine and ten. We would say eight per cent was a fair average at present."

SOUTH CAROLINA.

Rate fixed at seven per cent in lieu of eight per cent, by act of January 2, 1777.

Statutes at Large of S. C., Vol. IV, p. 363.

Act of December 18, 1830, the former penalties for usury reduced to a forfeiture only of all interest, the principal sum alone being recoverable without costs.

Id., Vol. VI, p. 409.

See act of 1831, also 48, 49.

I am informed by Mr. John Heart, Private Secretary to the Governor, that there are no usury laws in force, and that any rate agreed upon by the parties is recoverable, but I do not find the statute law to this effect.

Mr. Heart also writes, under date of August 10, ult., that,—

“The prevailing or average rate of actual interest varies with the condition of the money market, from one, one and a half, to two per cent per month. The second (one and a half), is about the average rate. Any amount of money can be loaned on landed security.”

RHODE ISLAND.

SECTION 1. Interest in the rendition of judgments, and in all business transactions where interest is secured or paid, shall be computed at the rate of six dollars on a hundred dollars for one year, unless a different rate is expressly stipulated.

Chap. 582, § 1, Laws of 1865, passed March 17, Sess. Laws, p. 209.

Mr. John R. Bartlett, Secretary of State, writes, August 8th, ult., that,—

“There is no fixed rate of interest at our banks. When money is scarce, seven, seven and a half, and even eight per cent has been charged by our banks, while the present rates are from five to five and a half per cent.”

TENNESSEE.

The legal rate as established by the code of Tennessee (Meigs and Cooper's ed., 1858), is six per cent, article 1944, p. 398, chap. 14, entitled of “Money and interest.”

See Articles 1943 to 1955 inclusive.

The code was amended February 23, 1870, by the passage of an act entitled “An act to amend the usury laws of the State, and to establish a conventional rate of interest.”

Chap. LXIX of General Laws p. 86.

The first section of this act makes it lawful to contract for “any rate of interest not exceeding ten per cent per annum, provided that the rate of interest be in writing and expressed on the face of the instrument creating the debt or obligation.”

By the third section, if unlawful interest is contracted for, it shall operate as a release of the debtor for all interest in excess of six per cent.

By the fourth section, parties guilty of usury may be indicted and fined not less than one hundred dollars.

Gen. *G. W. Gordon*, writes from Nashville, under date of August 30th, ult., that,—

“Money will readily command ten per cent interest in this State.”

TEXAS.

Extract from the Constitution of July, 1869:

ART. 12, SEC. XLIV. All usury laws are abolished in this State, and the Legislature is forbidden from making laws limiting the parties to contracts in the amount of interest they may agree upon for loans of money or other property; *provided*, this section is not intended to change the provisions of law fixing rate of interest on contracts where the rate of interest is not specified.

When there is no agreement the rate of interest is eight per centum per annum.

Art. 3940, Laws of Texas (2d ed.) 1869; Paschal's Annotated Digest, p. 665, Article, Interest.

Before the Constitution of 1869 the maximum or conventional rate of interest was not exceeding twelve per cent.

Id. art. 3941, p. 666.

Mr. *T. N. Waul*, a practicing lawyer in Galveston, writes under date of September 8th, ult., that,—

“The prevailing or average rate of actual business interest is, in bank, twelve per cent discount on sixty and ninety days; on the street, from one and a half to two and a half per month, frequently at much higher rates; loans on undoubted and unincumbered real estate, twelve per cent per annum, payable quarterly or semi-annually, for one, two and three years. Large amounts could be securely invested on long loans at ten per cent per annum.”

VERMONT.

Rate of interest six per cent.

Sec. 3, Chap. 79, p. 507, General Statutes of Vermont, 1863, Article, Interest of Money.

Excess of interest may be recovered back, with interest, in an action of assumpsit.

Id. Sec. 4.

Provisions relating to interest shall not extend to the letting of cattle, or other usages of a like nature, among farmers, or maritime contracts, bottomry or course of exchange, as has been customary.

§ 5, id. p. 508.

Dr. *Julius Y. Dewey*, President of the National Life, of Montpelier, writes under date of August 30th, ult., as to the average rate of business interest,—

“Our people manage to get something more than legal interest. One mode is by purchasing mortgage notes at some discount, say, one or two per cent on notes that draw six per cent. Most of the national banks discount about legal rates.”

VIRGINIA.

Extract from the new Constitution :

Usury. Upon debts hereafter contracted it shall be lawful to receive any rate of interest, not exceeding twelve per centum per annum, which may be agreed upon by the parties and be specified in the bond, note, or other writing evidencing the debt. When there is no such agreement, the rate of interest shall be six per centum per annum for the use and forbearance of every hundred dollars.

Article X; see Session Laws 1869, '70, p. 627.

This provision of the Constitution was enacted into a statute March 15, 1870 :

The penalties for usury continue to be a forfeiture of all interest with payment of the costs of suit.

Code of Virginia, 1860, Chap. CXLI, Title 42, of Money and Interest, Nos. 5 to 10.

Col. *T. F. Owens*, Aid-de-camp to the Governor, writes from Richmond, August 28th, ult., that,—

“The average rate of business interest is about nine per cent.”

WEST VIRGINIA.

§ 4. Legal interest shall continue to be at the rate of six dollars upon one hundred dollars for a year, and proportionably for a greater or less sum, or for a longer or shorter time ; and no person, upon any contract, shall take, for the loan or forbearance of money or other thing, above the value of such rate.

Sec. 4, chap. XCIVI, of Money and interest, Code of West Virginia, 1868, p. 533.

§ 5. All contracts and assurances made directly or indirectly for the loan or forbearance of money or other thing at a greater rate of interest than six per cent, except when such greater rate is now allowed by law, shall be void as to the excess of interest agreed to be paid above that rate, and no further.

Id. § 5, p. 533.

Mr. *R. G. Barr*, a leading lawyer of Wheeling, writes under date of July 31st, ult., that,—

“The average business interest is from ten to twelve per cent. In some portions of the State it never commands less than twelve per cent.”

WISCONSIN.

Rate is seven per cent ; but parties may contract for a rate not exceeding ten per cent in case such rate “be clearly expressed in writing.”

Sess. Laws, 1866, chap. 120, § 1, p. 168.

The instrument reserving usurious interest is valid for the principal, but no interest shall be recovered thereon.

Sess. Laws of 1871, chap. 93, p. 128.

ARIZONA TERRITORY.

No information has as yet been received on the subject of rates of interest.

ALASKA TERRITORY.

No information on the subject of interest.

COLORADO TERRITORY.

SECTION 1. The legal rate of interest on the forbearance or loan of any money, when there is no agreement between the parties, as specified in the third section of this chapter, shall be at the rate of ten per centum per annum.

Revised Statutes of Colorado, 1868, chap. LXIV, article, Interest, § 1, p. 363.

§ 3. The parties to any bond, bill, promissory note or other instrument of writing, may stipulate therein for the payment of a greater or higher rate of interest than ten per centum per annum, and any such stipulation contained in any such instrument of writing may be enforced in any court of law or equity in the Territory.

Id. § 3, p. 362. For other provisions, see id. §§ 2 and 4.

Mr. D. C. Dodge, General Agent of the Kansas Pacific Railway Company, writes from Denver, under date of Sept. 5th, ult., that,—

“The average rate of business interest at present is one and a half per cent per month on good security; long time, good real estate security, fifteen per cent per annum could be readily obtained. Loan on call, twelve per cent per annum.”

DAKOTA TERRITORY.

No information has as yet been received on the subject of rates of interest.

DISTRICT OF COLUMBIA.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That the rate of interest upon judgments or decrees, and upon the loan or forbearance of any money, goods or things in action, shall continue to be six dollars upon one hundred dollars for one year, and after that rate for a greater or less sum or for a longer or shorter time, except as hereinafter provided.

Chap. LIX, § 1 of an act to amend the usury laws of the District of Columbia. Approved April 22, 1870. U. S. Statutes at Large, vol. 16, p. 91.

§ 2. *And be it further enacted, That, in all contracts hereafter to be made, it shall be lawful for the parties to stipulate or agree, in writing, that the rate of ten per cent per annum, or any less sum of interest, shall be taken and paid upon every hundred dollars of money loaned or in any manner due and owing from any person or corporation in this District.*

Id. § 2, p. 91.

Usurious contract, all of the interest is forfeited, the principal alone recoverable.

Id. §§ 3 and 4.

Mr. *Vedant B. Edwards*, a practicing lawyer, writes Aug. 25th, from Washington, as follows,—

“The practical or business rate of interest has always been ten per cent, as we could borrow from Baltimore at ten per cent.”

IDAHO TERRITORY.

SECTION 1. Section five of said act is hereby amended so as to read as follows:
 § 5. Parties may agree in writing for the payment of any rate of interest whatever on money due or to become due on any contract. Any judgment rendered on such contract shall bear the same rate of interest that the contract bore until satisfied.

Chap. VII, § 1 of the act approved January 9, 1866, entitled “An act to amend an act entitled ‘An act in relation to money of account and interest.’” Sess. Laws, p. 135.

When there is no express contract in writing fixing a different rate of interest, the legal rate is ten per cent.

Sec. 4 of an act approved January 13, 1864, entitled “An act in relation to money of account and interest.” Sess. Laws, 1863, 1864, p. 605.

Mr. *E. J. Curtis*, Territorial Secretary, writes under date of Oct. 1st inst., that the,—

“Prevailing rate of interest is two per cent per month.”

MONTANA TERRITORY.

The legal rate is ten per cent when no rate is specified by agreement; parties can contract at any rate agreed upon if it is stipulated in writing.

Laws of Montana, 1865, p. 535,

There are no laws against usury.

Governor *B. F. Potts*, writes from Virginia City, under date of September 9th, ult., that,—

“The average rate of interest in Montana is from two to three per cent per month. County warrants bearing ten per cent per annum can be purchased here for sixty to seventy-five per cent on the dollar, running probably two, and not longer than three, years, and are perfectly safe as an investment. Territorial warrants are worth eighty cents, drawing ten per cent per annum, and payable in one, and not more than two, years. We have had a little trouble here by a small defalcation of the Territorial Treasurer, but we have arranged the matter so there will be no loss to any body.”

NEW MEXICO TERRITORY.

No information has been received.

UTAH TERRITORY.

§ 1. Be it enacted by the Governor and Legislative Assembly of the Territory of Utah, That it shall be lawful to take ten per cent interest per annum, when the amount of interest has not been specified or agreed upon.

Sec. 1 of the act approved Feb. 19, 1869, entitled "An act in relation to interest."

Parties can fix a conventional rate by agreement, and there are no penalties for taking more than ten per centum.

Id.

Justice *James B. McKean* writes, under date of Salt Lake City, September 7th ult., in reference to the actual rate of business interest, that,—

"One per cent a month (twelve per cent a year) is a common rate of interest agreed upon, although the banks sometimes charge and get two per cent per month."

WASHINGTON TERRITORY.

SECTION 1. *Be it enacted by the Legislative Assembly of the Territory of Washington,* That the legal rate of interest shall be ten per centum per annum.

§ 2. Any rate of interest agreed upon by parties to a contract, specifying the same in writing, shall be valid and legal.

An act to regulate the interest of Money. Washington Statutes, 1854,
p. 380.

WYOMING TERRITORY.

No information has as yet been received on the subject of a rate or rates of interest.

GREAT BRITAIN.

A. D. 1545.

The statute 37th Henry VIII (also 13th Eliz.) fixed the legal rate of interest at ten per cent.

This rate was the same as in Genoa, then the great monetary centre.

Under the Commonwealth (Cromwell) the legal rate was reduced to six per cent.

The statute of 25 Jac. I, cap. 17, reduced the legal rate to eight per cent.

The act 12 Charles II, cap. 13 (Aug. 27, A. D. 1660), reduced the rate to six per cent.

The act of 2d and 3d Victoræ, cap. 37, provided in its first section for exempting certain bills of exchange and promissory notes from the laws relating to usury. The second section enacted as follows:

SEC. 2. Provided always, and be it enacted, that nothing in this act contained shall be construed to enable any person or persons to claim, in any court of law or equity, more than five *per cent* interest on any account or on any contract or engagement, notwithstanding they may be relieved from the penalties against usury, unless it shall appear to the court that any different rate of interest was agreed to between the parties.

Statutes of Great Britain and Ireland, Vol. XV, p. 88.

The average rate of interest realized in England, on investments in the public funds, is about three and a quarter per cent.

Mr. Samuel Brown remarks as follows in reference to the investments of Life insurance companies :

"I have assumed *three and a half, four and a half*, because, practically, these afford about the limits which prudent and well organized companies obtain for their investments. Some of the old companies, not having yet considered the new sources of investment which have of late years opened up, are still only realizing three and a half per cent on the average on their whole funds; while others of equal standing have, by changes and by skill and attention to this business, secured four and a half per cent on the whole. It will probably be found that *four* per cent is very near the average interest on the capital of all the existing companies, including their productive and non-productive funds." * * *

Address by Samuel Brown, V. P. I. A., on the Investments of the Funds of Assurance Companies. Journal of the Institute, vol. VII, p. 243.

The following Table No. 3 digests the substance of the laws of the different States and Territories of the United States on this subject :

TABLE No. 3.

Compiled by WILLIAM BARNES, showing the legal rates of interest in the different States and Territories of the Union, where there is no special contract or agreement; also, the highest legal rate allowed to be fixed by agreement, and the actual business rate of interest, and the various penalties, if any, for usury. (September, 1871.)

NAME OF STATE.	Population.	Legal rate where there is no agreement.	Highest legal rate allowed by agreement.	Actual business rate of interest.	Penalty for usury.
Alabama	996,992	8	No limit.	9 & 24 to 37	Loss of all the interest.
Arkansas	484,471	6	No limit.	10 to 36	Constitution prohibits any usury law.
California	560,247	7 & 10	No limit.	8 to 18	No penalty.
Connecticut	597,454	6	6	6 +	Loss of all the interest.
Delaware	125,015	6	6	6	Loss of the principal, forfeited, etc.
Florida	187,748	8	No limit.	10 to 12 & 36	No penalty.
Georgia	1,184,109	7	7	12 to 24	Loss of excess of interest.
Illinois	2,539,891	6	10	9	Loss of all the interest.
Indiana	1,680,637	6	10	10	Loss of excess of interest.
Iowa	1,191,792	6	10	10	Loss of ten per cent of principal, all int., etc.
Kansas	364,399	7	12	12	Loss of all the interest.
Kentucky	1,320,011	6	10	9	Loss of all the interest.
Louisiana	726,915	5	8 & 12	6 to 15	Loss of all the interest.
Maine	626,915	6	No limit.	7 to 8	No penalty.
Maryland	790,849	6	6	7 to 9 & 12	Loss of excess of interest.
Massachusetts	1,457,355	6	No limit.	7	No penalty.
Michigan	1,184,059	7	10	10 & 12 to 36	Loss of excess of interest.
Minnesota	439,706	7	12	12	Loss of excess of interest.
Mississippi	827,922	6	10	10	Excess forfeited.
Missouri	1,721,295	6	10	8 to 18	Loss of all int., forfeited to Co. for schools.
Nebraska	122,993	10	No limit.	12 to 60	Loss of all the interest.
Nevada	42,491	10	6	18 to 24	No penalty.
New Hampshire	318,303	6	7	7	Forfeiture of three times the excess of int.
New Jersey	906,096	7	7	7 +	Loss of all the interest.
New York	4,382,759	7	7	7 +	Loss of principal and interest; contract void.

North Carolina	1,071,361	6	8	8 to 18	Loss of all the interest.
Ohio	2,665,260	6	8	6 to 9	Loss of excess of interest.
Oregon.....	90,923	10	12	12	Forfeiture prin. to sch. fund, and loss of int.
Pennsylvania.....	3,521,791	6	6	6 to 18	Loss of excess of interest.
South Carolina.....	705,606	No limit.(?)	18	18	Supposed, no penalty.
Rhode Island	217,353	6	No limit.	5 to 8	No penalty.
Tennessee.....	1,258,520	6	No limit.	10	Indictable offense; loss of excess of interest.
Texas.....	818,579	8	No limit.	12 to 30	No penalty; Constit'n prohibits usury laws.
Vermont.....	320,551	6	6	7	Loss of excess of interest.
Virginia	1,225,163	6	12	9	Forfeiture of all int.; rate fixed by Constit'n.
West Virginia	442,014	6	6	10 to 12	Loss of excess of interest.
Wisconsin	1,054,670	7	10	9	Loss of all the interest; if paid, treble recoverable back.
Average rate (37 States).....	38,122,212	6.7	.....	.....	.....
 TERRITORIES.					
Arizona	9,658	.....	.....	.....	.....
Alaska.....	.....	10	No limit.	15 to 18	No penalty.
Colorado	39,864	14,181	.....	.....	.....
Dakota.....	131,700	6	10	10	Loss of excess of interest.
District of Columbia.....	.....	.....	.....	.....	.....
Idaho	14,999	10	No limit.	24 to 36	No penalty.
Montana	20,595	10	No limit.	24 to 36	No penalty.
New Mexico.....	91,874	.....	.....	.....	.....
Utah	86,786	10	No limit.	12 to 24	No penalty.
Washington	23,955	10	No limit.	.....	No penalty.
Wyoming	9,118	.....	.....	.....	.....
Average rate (11 Territories)	442,730	.....	.....	.....	.....
Grand average (48 States & Ter.)	38,564,942	7.7	.....	.....	.....

I.

STANDARD TABLE OF MORTALITY FOR THE STATE VALUATION OF LIFE INSURANCE POLI- CIES AND ENDOWMENTS.

In the May session of the Convention there was such an almost entire harmony and unanimity in approving and recommending the American Experience Table of Mortality, that I need not reiterate here my well-known views that it is the one best adapted to the actual state of Life insurance business in this country, and therefore the best one upon which to secure uniformity throughout the Union.

It was constructed from actual American Experience, principally that of the Mutual Life Insurance Company of New York, and was first tabulated by Mr. Charles Gill and subsequently by Mr. Sheppard Homans, both formerly actuaries of that company. It has been graduated and modulated with admirable skill and tact by Mr. Homans, with all the aids of the established and standard tables of Europe and records of mortality in this country; and it will remain long after his death as the most perfect and honorable work which he has matured and given to the world. The American Experience Table, even as first formulated on narrow experience by Professor Gill, was in singular unison with that of the Gotha Life, the largest company on the continent, and as finally tabulated by Mr. Homans, harmonizes wonderfully also with the Actuaries' New Experience Table in Great Britain; which latter Table, according to Mr. *Samuel Brown* (in a letter to me, dated July 19, 1869) contains,—

“The law of mortality of assured lives in *any* country, for I cannot (he says) imagine much difference would be found in selected lives, whatever difference there may be in various classes of the populations. We further propose to publish a second volume of official tables,” etc.

In the course of five, ten or more years it may be advisable to gather and tabulate the new and further experience of the American companies and combine the same in a new American Experience Table, which can then be made to cover a very large number of lives and an experience wider and more extensive than any yet published of actual insured lives. If such collected facts, when tabulated, require any modification of the present Table it can then be made.

In order to give to the Convention the ready means of comparing the Death-force at each age of life in this and the other leading Life Tables, I have prepared the following tabular comparison (Table No, 4, pp. 46-49), both of the percentage of mortality and the number out of which one will die at each age, according to the seven following leading standards.

It will readily be apprehended that the Percentage Table, by changing the decimal point, is applicable to a single or any number of lives at the specified age. The ratio carried out indicates the average probability of dying during a period equal to a whole year; by subtracting the percentage from one hundred or one we obtain of course the opposite chance or probability of surviving during the year, both chances making, when added together, one hundred or unity.

In that part of the Table (No. 4), which shows the number out of which one will die during a year, it is assumed that, at the specified age, the full number of lives, or persons indicated, is exposed to risk for an entire year, whether made up of integers alone or of integers and fractions.

Table No. 5 (see *post* pages, 50 to 52), shows the first order of the differences in the following six Tables:

- (1) American Experience Table.
- (2) Actuaries or Old Combined Experience.
- (3) Actuaries or New Experience.
- (4) English Life Table No. 3 (males).
- (5) Carlisle Table.
- (6) Deparcieux (French) Table.

The second and third orders of differences are also shown in the American Experience and Old Combined Experience Tables. (See pp. 50, 51, 52.)

TABLE No. 4.

Showing the Percentage of Mortality at each age of Life, according to the (1) American Experience, (2) Actuaries or old Combined Experience (3) Actuaries or new Combined Experience (4) English No. 3 Males, (5) Carlisle, (6) Deparcieux, and (7) Finlaison's Government Annuity Tables of Mortality; and, also, the number out of which one will die at each age of life, according to the same tables, except Finlaison's.

Age.	PERCENTAGE OF MORTALITY AT EACH AGE:						NUMBER OF LIVES OUT OF WHICH ONE WILL DIE DURING THE YEAR:					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)
0	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....
1	.....	.....	.....	.....	15.3895	15.3895	15.3895	1	.....	.....	.....	6.41
2	.....	.....	.....	.....	8.0693	8.0693	8.0693	2	.....	.....	.....	15.55
3	.....	.....	.....	.....	6.4297	6.4297	6.4297	3	.....	.....	.....	12.40
4	.....	.....	.....	.....	6.4918	6.4918	6.4918	4	.....	.....	.....	15.40
5	.....	.....	.....	.....	3.5493	3.5493	3.5493	5	.....	.....	.....	28.17
6	.....	.....	.....	.....	2.3850	2.3850	2.3850	6	.....	.....	.....	41.92
7	.....	.....	.....	.....	1.7819	1.7819	1.7819	7	.....	.....	.....	26.35
8	.....	.....	.....	.....	2.8723	2.8723	2.8723	8	.....	.....	.....	34.82
9	.....	.....	.....	.....	1.3590	1.3590	1.3590	9	.....	.....	.....	36.12
10	0.7490	0.6790	0.6790	0.7900	0.5617	0.5617	0.4489	0.900	0.5617	0.5617	0.5617	73.58
11	0.7516	0.6786	0.6786	0.7900	0.5039	0.4820	0.4820	0.688	1.0793	1.0793	1.0793	6.11
12	0.7542	0.6812	0.6812	0.7900	0.4470	0.4032	0.4032	0.600	0.5987	0.5987	0.5987	15.55
13	0.7569	0.6848	0.6848	0.7900	0.3542	0.4079	0.4079	0.693	0.5809	0.57348	0.57348	28.17
14	0.7596	0.6896	0.6896	0.7900	0.4002	0.4453	0.4453	0.698	0.58678	0.61345	0.61345	41.92
15	0.7633	0.6944	0.6944	0.7900	0.2242	0.5173	0.6191	0.708	0.65225	0.66601	0.66601	34.82
16	0.7660	0.7003	0.7003	0.7900	0.5620	0.6708	0.6708	0.831	0.82412	0.76770	0.76770	16
17	0.7688	0.7062	0.7062	0.7900	0.4190	0.6201	0.6201	0.6914	0.838	0.83232	0.80140	17
18	0.7726	0.7134	0.7134	0.7900	0.6056	0.6854	0.6854	0.845	1.04114	0.82793	0.82793	18
19	0.7765	0.7206	0.7206	0.7900	0.7559	0.7022	0.7022	0.833	1.16120	0.83823	0.83823	19
	0.7804	0.7291	0.7291	0.7900	0.5822	0.8285	0.8285	0.983	1.25790	0.83869	0.83869	20

21	0.7855	0.7377	0.7008	0.6946	0.993	1.32700	0.83706	125.56	142.69	143.98	100.70
22	0.7906	0.7464	0.6215	0.8445	0.6994	1.003	1.36380	0.83247	126.48	133.97	160.90
23	0.7958	0.7564	0.7738	0.8819	0.7043	1.013	1.36790	0.82857	125.65	132.23	113.39
24	0.8011	0.7666	0.6837	0.8087	0.7003	1.023	1.34300	0.82701	124.83	130.45	141.98
25	0.8064	0.7770	0.5163	0.9160	0.7314	1.034	1.36200	0.82909	124.00	146.26	111.27
26	0.8130	0.7887	0.6919	0.9333	0.7368	1.044	1.25330	0.88542	26	123.00	144.52
27	0.8196	0.8006	0.5332	0.9507	0.7768	1.055	1.21060	0.84611	27	122.00	124.91
28	0.8264	0.8139	0.7781	0.9688	0.8699	1.067	1.17380	0.86084	28	121.00	122.88
29	0.8314	0.8275	0.4400	0.9877	0.9825	1.078	1.14820	0.87894	29	119.83	135.13
30	0.8436	0.8425	0.8234	1.0074	1.0163	1.090	1.15380	0.88676	30	118.66	121.44
31	0.8510	0.8578	0.7293	1.0268	1.0206	1.102	1.13710	0.91898	31	117.50	116.49
32	0.8607	0.8747	0.8063	1.0364	1.0130	1.114	1.15000	0.93863	32	116.18	114.33
33	0.8717	0.8819	0.8320	1.0741	1.0051	1.127	1.15550	0.93716	33	114.71	112.12
34	0.8830	0.9095	0.8735	1.0094	1.0151	1.140	1.20810	0.97442	34	113.24	109.93
35	0.8946	0.9238	1.0265	1.0237	1.153	1.0257	1.24280	0.98916	35	111.78	107.66
36	0.9088	0.9485	0.8765	1.0535	1.0532	1.106	1.27540	1.00290	36	110.66	105.44
37	0.9234	0.9687	0.9533	1.0874	1.0853	1.0852	1.30310	1.01393	37	108.29	103.23
38	0.9408	0.9906	0.1360	1.2210	1.1167	1.043	1.32440	1.02467	38	106.20	100.95
39	0.9586	0.1031	0.588	1.2575	1.1877	1.054	1.32890	1.03537	39	104.31	98.71
40	0.9794	1.0362	1.0850	1.2971	1.3005	1.065	1.34790	1.04797	40	102.10	96.51
41	1.0008	1.0612	1.0440	1.3391	1.3745	1.077	1.35620	1.06378	41	99.92	94.23
42	1.0252	1.0894	0.798	1.3844	1.4337	1.089	1.35710	1.08300	42	97.54	91.79
43	1.0517	1.1251	1.0540	1.4337	1.4582	1.101	1.36200	1.10770	43	90.88	89.87
44	1.0829	1.1697	1.1793	1.4856	1.4798	1.113	1.37020	1.13620	44	89.49	84.77
45	1.1163	1.2212	1.2460	1.5119	1.4800	1.125	1.38840	1.16800	45	81.89	80.25
46	1.1562	1.2829	1.2474	1.6017	1.4816	1.301	1.42120	1.20290	46	86.49	77.89
47	1.2000	1.3516	1.4075	1.6960	1.4603	1.318	1.44220	1.24010	47	83.33	73.99
48	1.2509	1.4230	1.4147	1.7344	1.3935	1.303	1.53340	1.27930	48	79.94	70.12
49	1.3106	1.5061	1.5297	1.8071	1.36835	1.325	1.62700	1.32120	49	76.30	66.20
50	1.3781	1.5938	1.5938	1.8445	1.8445	1.721	1.74190	1.36520	50	72.56	62.74
51	1.4541	1.6898	1.7333	2.0217	1.4292	1.926	1.85570	1.41100	51	68.77	59.17
52	1.5389	1.7947	1.7070	2.1223	1.5201	1.904	1.97190	1.46200	52	64.98	55.72
53	1.6333	1.9093	1.7221	2.2262	1.6148	2.004	2.08940	1.56220	53	61.22	52.38
54	1.7396	2.0313	1.8906	2.3365	1.6896	2.230	2.19630	1.57540	54	57.48	49.23
55	1.8571	2.1664	2.2966	2.4549	1.7923	2.281	2.30020	1.63880	55	53.85	46.16
56	1.9885	2.3126	2.3045	2.5837	1.9000	2.335	2.39060	1.70740	56	50.20	45.24
57	2.1335	2.4679	2.3919	2.7251	2.5950	2.0897	2.49760	1.78270	57	46.88	41.80
58	2.2936	2.6586	2.6586	2.8850	2.4206	2.658	2.59970	2.59970	58	43.60	37.90
59	2.4720	2.8246	3.0570	2.8246	2.8246	2.8246	2.71170	1.96800	59	40.45	35.40
60	2.6633	3.0336	3.1197	3.2514	3.3489	2.808	2.84650	2.84650	60	38.60	32.96
61	2.8880	3.2612	3.4551	3.4551	3.7405	3.204	3.01230	2.23860	61	34.62	30.66
62	3.1292	3.5121	3.4551	3.4551	3.7405	3.204	3.21550	2.41840	62	31.96	28.42

TABLE No. 4—(Continued).
Showing the Percentage of Mortality at each age of Life, etc.

PERCENTAGE OF MORTALITY AT EACH AGE:							NUMBER OF LIVES OUT OF WHICH ONE WILL DIE DURING THE YEAR:								
Age.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Age.	(1)	(2)	(3)	(4)	(5)	(6)	Age.
63	3.3943	3.7540	3.7474	3.9726	3.8230	3.310	3.45860	63	29.46	26.63	25.17	26.14	30.21	63	63
64	3.6873	4.0120	4.0101	4.2074	3.9771	3.423	3.7220	64	24.99	24.49	23.43	25.14	23.21	64	64
65	4.0082	4.4082	4.3602	4.5009	4.1087	3.797	4.06530	65	24.92	22.68	22.93	21.73	26.33	65	65
66	4.3707	4.7014	4.6650	4.9467	4.2562	4.211	4.42510	66	22.88	21.00	21.43	20.21	23.53	66	66
67	4.7647	5.1474	5.0932	5.3773	4.8032	4.670	5.31820	67	19.42	20.43	18.74	22.53	21.41	67	67
68	5.2002	5.5630	5.5426	5.7026	4.6450	5.1857	5.24080	68	19.23	17.98	17.35	18.04	19.27	68	68
69	5.6762	6.0087	6.0096	6.2257	4.9109	5.775	5.68890	69	17.62	16.64	16.41	16.06	20.36	69	69
70	6.1993	6.4933	5.6156	6.7382	5.1615	6.129	6.14540	70	16.13	15.40	17.80	14.86	17.31	70	70
71	6.7665	7.0158	6.2011	7.2707	5.8849	6.873	6.68210	71	14.78	14.25	16.12	13.75	16.39	71	71
72	7.3733	7.5805	7.9869	7.8529	6.8129	7.380	7.06130	72	13.56	13.19	12.52	12.73	14.68	72	72
73	8.0178	8.1884	8.1884	8.4839	7.8641	7.9117	7.53160	73	12.47	12.21	12.71	11.79	12.89	73	73
74	8.7026	8.8468	8.8468	9.0168	8.6558	8.02360	8.56850	74	11.49	9.49	10.92	11.09	11.55	74	74
75	9.4371	9.6560	9.4021	9.5329	9.005	8.59990	7.18200	75	10.46	10.46	10.13	10.47	11.10	75	75
76	10.2311	10.2180	10.6244	10.6422	10.2970	9.896	9.28040	76	9.77	9.66	9.41	9.40	9.71	76	76
77	11.1064	11.1469	10.8635	11.4541	10.7432	10.983	10.0860	77	9.00	8.97	8.73	9.31	9.10	77	77
78	12.0827	12.0444	12.0326	12.3159	10.8821	11.688	10.90010	78	8.28	8.30	8.12	8.12	8.45	78	78
79	13.1734	13.0065	13.5940	13.2247	11.8409	13.235	11.98850	79	7.50	7.69	7.35	7.66	7.95	79	79
80	14.4466	14.0406	14.0805	14.1846	12.1721	14.407	13.05170	80	6.92	7.01	7.10	7.05	8.22	80	80
81	15.8605	15.1436	15.9690	15.1943	13.3811	15.842	14.11770	81	6.30	6.60	6.26	6.58	7.47	81	81
82	17.4207	17.3194	16.9154	16.2389	14.0630	14.471	15.18100	82	5.74	6.13	5.91	6.15	7.11	82	82
83	19.1561	17.5913	17.5913	20.6751	17.3543	15.0883	16.901	83	5.22	5.69	4.83	5.76	6.63	83	83
84	21.1359	18.9678	18.9678	18.0303	18.5119	15.8790	17.28210	84	5.27	5.42	5.42	5.42	6.30	84	84
	23.5552	20.5695	21.6236	17.5281	19.7191	20.833	18.3280	85	4.88	4.24	4.88	5.07	5.71	85	85

86	25.5681	22.2480	21.6981	20.9610	19.3461	23.6864	19.44770	17.98910	86	3.76	4.49	5.17	4.22	86
87	30.3020	24.2234	21.6863	22.2617	21.6216	23.4616	21.9836	21.2773	87	3.30	4.13	4.61	4.12	87
88	34.6692	26.5274	28.4616	25.0000	21.5470	21.250	21.5430	20.67350	88	2.88	3.77	3.51	4.24	88
89	39.5863	29.2382	19.3548	22.3730	26.4151	26.0563	26.3614	23.68250	89	2.52	3.42	5.16	4.00	89
90	45.4546	32.3730	22.6666	27.8917	28.5714	42.857	26.93510	25.38080	91	1.88	2.77	3.22	3.58	91
91	53.2468	36.0987	31.0345	27.8917	28.5714	42.857	26.93510	27.23200	92	1.58	2.47	2.22	3.40	92
92	63.4259	40.5233	45.0000	29.4059	28.0000	50.000	29.21510	29.39050	93	1.36	2.19	1.51	3.22	93
93	73.4177	45.7227	65.9090	30.9457	25.9259	100.000	31.91890	34.07231	94	1.17	1.93	0.00	4.00	94
94	85.7143	51.6306	0.0000	32.4459	25.0000	.....	36.64755	40.41080	95	1.00	1.71	3.00	2.92	95
95	100.0000	68.4270	33.3333	34.2137	23.3333	.....	42.76044	.....	96	.....	.....	.....	.....	96
96	.....	64.8649	100.0000	35.7664	21.7391	.....	50.45997	48.58419	96	1.54	1.00	2.79	4.60	96
97	.....	69.2308	75.0000	37.5000	22.2222	.....	59.94555	58.84070	97	1.44	1.44	2.67	4.50	97
98	.....	75.0000	100.0000	39.0000	21.4286	.....	71.42857	71.42857	98	1.33	1.33	2.56	4.68	98
99	.....	100.0000	.....	41.0448	18.1818	.....	85.10245	85.10245	99	1.00	1.00	2.44	5.50	99
100	.....	.....	.....	41.1721	22.2222	.....	100.00000	100.00000	100	.....	.....	2.39	4.50	100

TABLE No. 5.

Showing the first order of differences in the (1) American Experience, (2) Actuaries or old Combined Experience (3) Actuaries or new Combined Experience in (4) English Life Table No. 3, males, (5) Carlisle Table, (6) Deparcieux Table, and the second and third orders of differences in the American Experience and the old Actuaries Tables of Mortality.

Age.	(1)		(2)		(3)		(4)		(5)		(6)			
	American Experience 1st difference.	Actuaries or old Combined Experience 1st difference.	Actuaries or new Combined Experience (not graduated) 1st difference.	Actuaries or new Combined Experience (not graduated) 1st difference.	English, No. 3, Males 1st differ- ence.	Carlisle Table 1st difference.	Deparcieux Table 1st difference.	American Experience 2d difference.	Actuaries or Combined Experience (old) 2d differ- ence.	American Experience 3d difference.	Actuaries or Combined Experience (old) 3d differ- ence.	Americans or Combined Experience (old) 3d differ- ence.	Age.	
0	.....	.....	.....	.....	-9.9298	-7.3295	.....	.....	.....	.....	.....	.....	0
1	.....	.....	.....	.....	-2.8894	-1.5687	.....	.....	.....	.....	.....	.....	1
2	.....	.....	.....	.....	-1.1043	-0.6975	.....	.....	.....	.....	.....	.....	2
3	.....	.....	.....	.....	-0.6031	-0.3220	.....	-0.732	.....	.....	.....	.....	3
4	.....	.....	.....	.....	-0.4229	-1.0913	-0.369	.....	.....	.....	.....	.....	4
5	.....	.....	.....	.....	-0.2779	-0.5537	-0.286	.....	.....	.....	.....	.....	5
6	.....	.....	.....	.....	-0.1661	-0.3487	-0.192	.....	.....	.....	.....	.....	6
7	.....	.....	.....	.....	-0.1524	-0.2217	-0.091	.....	.....	.....	.....	.....	7
8	.....	.....	.....	.....	-0.1172	-0.1497	-0.206	.....	.....	.....	.....	.....	8
9	.....	.....	.....	.....	-0.0847	-0.0591	-0.215	.....	.....	.....	.....	.....	9
10	.....	.....	.....	.....	-0.0558	+0.0331	-0.221	.....	.....	.....	.....	.....	10
11	+0.0026	+0.0026	-0.7900	+0.0289	+0.005	+0.005	+0.000	+0.000	+0.000	+0.000	.....	.....	11
12	0.0026	0.0026	+0.4032	-0.026	0.0180	0.0180	0.001	0.001	0.001	0.001	+0.0001	+0.0001	12	
13	0.0027	0.0027	-0.0490	-0.0061	0.0182	0.0182	0.001	0.001	0.001	0.001	-0.0001	+0.0002	13	
14	0.0027	0.0027	0.0048	+0.0520	+0.0144	0.0343	0.005	0.005	0.005	0.005	+0.0010	-0.0012	14	
15	0.0037	0.0037	-0.0181	+0.0320	0.0666	0.0666	0.005	0.005	0.005	0.005	0.0000	0.0000	15	
16	0.0037	0.0037	-0.2244	+0.0456	0.0517	0.123	-0.010	0.011	0.011	0.011	+0.0000	+0.0011	16	
17	0.0038	0.0038	+0.4190	0.0059	0.0572	0.0306	0.007	0.001	0.000	0.000	-0.0009	-0.0011	17	
18	0.0038	0.0038	+0.1866	+0.0072	0.0653	0.0443	0.007	0.0013	0.0013	0.0013	+0.0009	+0.0013	18	
19	0.0039	0.0039	-0.0072	+0.0966	0.0705	0.0449	0.008	0.001	0.000	0.000	-0.0009	-0.0013	19	
20	0.0039	0.0039	+0.1200	0.0726	+0.0050	0.130	0.000	0.0013	0.0013	0.0013	+0.0013	+0.0013	20	
21	0.0051	0.0051	0.0086	+0.1186	0.0181	-0.0115	0.010	0.0012	0.0001	0.0001	+0.0012	-0.0012	21	
22	0.0051	0.0051	-0.0087	-0.0793	0.0179	+0.0048	0.010	0.0000	0.0001	0.0001	-0.0012	+0.0000	22	
23	0.0052	0.0052	+0.1523	+0.0100	-0.174	-0.0049	0.010	0.0001	0.0013	0.0013	+0.0012	+0.0012	23	
24	0.0053	0.0053	0.0102	-0.0901	0.0163	0.0050	0.010	0.0002	0.0001	0.0001	-0.0011	+0.0000	24	
25	0.0053	0.0053	-0.1674	0.0104	-0.1673	0.0221	0.011	0.0002	0.0001	0.0001	-0.0001	+0.0000	25	

TABLE showing the orders of difference, etc.—(Continued).

Age.	(1) American Experience 1st differ- ence.	(2) Actuaries or Com- bined Ex- perience (old) 1st difference.	(3) Actuaries or new Com- bined Ex- perience (not graduated) 1st difference.	(4) English No. 3 Males 1st differ- ence.	(5) Carlisle Table 1st difference.	(6) D'espiau Table 1st difference.	(1) American Experience 2d difference.		(2) Actuaries or Combined Experience (old) 2d dif- ference.		(1) American Experience 3d difference.		(2) Actuaries or Combined Experience (old) 3d dif- ference.		Age.
							(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	
68	0.4335	0.4156	+0.6194	0.4253	0.2062	0.5117	0.0415	0.0296	+0.0053	+0.0005	68	.....	.....	.....	68
69	0.4760	0.4497	+0.5480	0.4631	0.2659	0.588	0.0405	0.0301	-0.0010	+0.0005	69	.....	.....	.....	69
70	0.5231	0.4846	-0.4750	0.5025	0.2536	0.354	0.0411	0.0391	+0.0066	+0.0009	70	.....	.....	.....	70
71	0.5672	0.5225	+0.5855	0.5425	0.7204	0.744	0.0441	0.0379	-0.0030	-0.0012	71	.....	.....	.....	71
72	0.6008	0.5647	+1.1798	0.5842	0.9280	0.507	0.0396	0.0422	-0.0045	+0.0043	72	.....	.....	.....	72
73	0.6445	0.6079	+0.1168	0.6290	0.9988	0.588	0.0577	0.0452	-0.0019	+0.0010	73	.....	.....	.....	73
74	0.6850	0.6584	+2.6732	0.6738	1.2051	0.690	0.0405	0.0505	+0.0028	+0.0073	74	.....	.....	.....	74
75	0.7343	0.7092	-1.0752	0.7173	0.5334	0.347	0.0493	0.0508	+0.0088	+0.0003	75	.....	.....	.....	75
76	0.7940	0.7620	+1.1623	0.7672	0.7448	0.891	0.0597	0.0538	+0.0104	+0.0020	76	.....	.....	.....	76
77	0.8753	0.8289	+0.8753	0.8119	0.4462	1.087	0.0813	0.0669	+0.0216	+0.0141	77	.....	.....	.....	77
78	0.9763	0.8975	+1.4341	0.8618	0.1389	0.705	0.1010	0.0686	+0.0197	+0.0017	78	.....	.....	.....	78
79	1.0907	0.9821	+1.2914	0.9088	0.9588	1.547	0.1144	0.0646	+0.0134	-0.0040	79	.....	.....	.....	79
80	1.2732	1.0341	+0.4865	0.9599	0.3312	1.172	0.1825	0.0720	+0.0881	+0.0074	80	.....	.....	.....	80
81	1.4139	1.1030	+1.8894	1.0097	1.2090	1.435	0.1407	0.0689	-0.0118	-0.0031	81	.....	.....	.....	81
82	1.5692	1.1758	+0.9455	1.0546	0.6879	0.629	0.1533	0.0728	+0.0146	+0.0039	82	.....	.....	.....	82
83	1.7264	1.2719	+3.7577	1.1054	1.0193	0.430	0.1572	0.0961	+0.0019	+0.0233	83	.....	.....	.....	83
84	1.9798	1.3765	-2.6428	1.1576	0.7907	1.743	0.2534	0.1046	+0.062	+0.0085	84	.....	.....	.....	84
85	2.4138	1.5447	+3.3963	1.2072	1.6491	2.180	0.4395	0.1632	+0.1861	+0.0006	85	.....	.....	.....	85
86	3.0129	1.7385	+0.0715	1.2419	1.8180	2.851	0.5036	0.1968	+0.1541	+0.0316	86	.....	.....	.....	86
87	3.7339	1.9754	-0.0113	1.3007	2.2755	0.454	0.7210	0.1369	+0.1274	-0.0399	87	.....	.....	.....	87
88	4.3672	2.3040	+6.7748	1.3119	0.3612	3.125	0.6393	0.3286	+0.1123	+0.1017	88	.....	.....	.....	88
89	4.9171	2.7108	-9.1068	1.3864	-0.0448	3.977	0.5499	0.4006	-0.0834	+0.0182	89	.....	.....	.....	89
90	5.8683	3.1348	+3.3118	1.4151	+4.5038	5.114	0.9512	0.4240	+0.4013	+0.0172	90	.....	.....	.....	90
91	7.7923	3.7237	+8.3679	1.4766	+2.5151	6.495	1.9239	0.5900	+0.9727	+0.1669	91	.....	.....	.....	91
92	10.1791	4.4276	+13.9655	1.5142	-0.5714	7.143	2.3869	0.7019	+0.4630	+0.1110	92	.....	.....	.....	92
93	9.9198	5.1984	+20.9900	1.5398	-2.0741	+50.000	+2.5393	0.7688	+0.6669	+0.0669	93	.....	.....	.....	93
94	12.9966	5.9077	-65.9000	1.5502	-0.9250	.....	+2.3768	0.7113	-2.1276	-0.6575	94	.....	.....	.....	94
95	+14.2857	6.7966	+33.8333	1.1178	-1.6667	.....	+1.9691	+0.8889	+2.1175	-0.5877	95	.....	.....	.....	95
96	.....	6.4379	+66.6667	1.5527	-1.5942	.....	.....	-0.3587	.....	-0.5302	96	.....	.....	.....	96
97	.....	6.3639	.....	1.1336	+0.4831	.....	.....	-0.0720	.....	-0.2807	97	.....	.....	.....	97
98	.....	5.7682	.....	1.5909	-0.7936	.....	.....	-0.5907	.....	+0.5247	98	.....	.....	.....	98
99	.....	+25.0000	.....	+1.9539	-3.2468	.....	.....	+19.2908	.....	+18.6341	99	.....	.....	.....	99
100	.....	.....	.....	+0.7275	+4.0404	.....	.....	.....	.....	.....	100	.....	.....	.....	100

It will readily be seen, from the above orders of differences, by even the casual observer, that the American Experience Table will not suffer, in comparison with any other of the leading Tables, so far as evenness of graduation and gentleness of curve is concerned. This merit, however, is not the chiefest in a mortality table. Accuracy and fidelity to nature is its primal beauty, to which all artificial graces must inexorably yield.

Mr. David Chisholm, the eminent Edinburgh actuary, wrote to me in August, 1869, as follows :

" It strikes me that the American rate of mortality is not so very different from that which is found to obtain in this country among assured lives, judging from certain results, though I have not yet had an opportunity of examining it minutely. But the materials which you have at your disposal, in the registry of half a million of policies, so far exceeds any thing which can be brought together in this country to work upon that I would look forward with considerable interest to the completion of a mortality table based upon such an extensive area. The resulting rates of mortality, from the bare facts alone, would, I apprehend, hardly require graduation, as the average of the lives at risk at each age would probably be sufficient to maintain the natural progression in close harmony with the increase of age, and I was much gratified to observe from your letter that you have something of this kind in view when your registers are complete. If, in a normal state of society, a reliable table of mortality from your abundant facts could be got up, such a table would, I think, express more satisfactorily the law of mortality which prevails among assured lives than any which we now possess, and could not fail in being interesting to the actuaries of this country.

" *Graduated Tables of Mortality do always, more or less, disturb the natural complexion of a Life Table*, and the system of graduation which least interferes with this is much to be preferred."

(The italics are mine.)

Mr. Edward Sang, of Edinburgh, one of the most scholarly and philosophic of the learned body of Scotch actuaries, in speaking of *graduating* or "*smoothing*" Life Tables, uses the following beautiful language :

" Now, it must be clear to you that if, instead of recording the actual observations astronomers had been in the habit of previously smoothing them down to suit the supposed proper curve, we should never have been able to explicate the true law of the variations, because the data from which alone it is to be found would have been concealed.

" It is the same in our business. There is, we must presume, a fundamental law of life, accompanying the organization of the human being; but this law is traversed by many artificial and accidental conditions; just as the disturbing attraction of the planets are combined with that of the sun. The disturbances caused by these conditions take the appearance of unevenness in the life-line, and to smooth these down, for the sake of accommodating them to any pre-

conceived idea, is virtually to prevent our learning any thing about them.

"We can hardly overestimate the influence of circumstances upon the duration of life. Think on the ravages of helminths and other parasites before the discovery of fire, and when all food was eaten raw ; consider the catarrhs and bronchitis, and the nauseous skin diseases, when men wrapped themselves in untanned hides. Or, not to go so far back, remark the change which has been caused by the discovery of vaccination by Jenner; or the immunity from ague, obtained by the use of quinine; from scurvy by that of lime-juice. Every improvement in life, every fluctuating fashion of dress, each new article of food, each new material for clothing, each change in our customs, must produce its effect, and leave its impress on the life-line ; so that the sinuosities which we attribute to accidents in our observations, may, in truth, indicate the existence of active influences. Those of the irregularities which are due to minute errors in observation will gradually be compensated, while such as depend on changes in the state of society will continue to be represented in the returns for succeeding years ; and, hence, on all accounts, we must declare against the smoothing down of results obtained from trustworthy data."

Address to the Actuarial Society of Edinburgh, 1868. Pamphlet, pp. 18, 19.

Further, on this subject from Mr. Sang,—

"It is only by the comparison of different sets of carefully made observations that we can ascertain whether the irregularities have been accidental, or whether they represent actual phenomena in the progress of human life. On this account, the *smoothing*, as it is called, of a Life Table, is always to be deprecated; we can only judge of the propriety of the smoothing, by comparison with some Table which we deem more trustworthy, but then we ought to adopt that which is more deserving of confidence."

Treatise on the Valuation of Life Contingencies, by Edward Sang, F. R. S. E. Edinburgh, 1864, pp. 4, 5.

If we are to abandon the field of actual fact and observation for the purpose of rounding or smoothing a curve by graduation (as proposed by Mr. Fackler, see pp. 179, 180, Proceedings of May Session of the Convention), why not return at once to the old but ingenious hypothesis of *De Moivre*, that the probabilities of living decrease in regular arithmetical progression after age of 12 (*Annuities on Lives, by A. De Moivre, Preface p. 9, and p. 83, Second Edition, 1743*); or to the theoretical but convenient Table of *William Orchard*, in which, after age 20, the decrements of life are one annually up to age 80, when the decrease is raised to five yearly until the full complement of life is entirely exhausted at age 95 (*Orchard's Assurance Premiums, 1856, pp. 8, 20 and 21*) ; or to the more philosophic Table of "Mean Mortality," by *T. R. Edmonds*, based upon the principle that human life covers three distinct orders of geometric progression in "force of mortality," indicated by Infancy,

Manhood (or florescence) and Old Age, during which the continuous changes in the force of mortality are indicated by three different constants, that for infancy indicating a continual diminution of death-force, those for manhood and old age indicating a continued but different increase in the force of mortality (*Life Tables by T. R. Edmonds, B. A.*, 1832, p. 6); or, to the new formula of Mr. Edmonds, according to which "there is one law of decrease of mortality at all ages after puberty; in either case the rate of mortality varies inversely according to constant power of the age measured from a fixed point. In the period below puberty, the fixed point is at $2\frac{1}{4}$ years, or 27 months before birth-time; in the period above puberty, the fixed point is at the age of 102 years, from which point distance in age is measured backward. The constant power or exponent of the age is $2,302585 = \frac{1}{k} =$ the hyperbolic logarithm of 10. According to the new formula, the force of mortality, according to age, from a constant point, is expressed in the same terms as the force of gravity, according to space or distance from a central point. If the variable in space or age be called (x), then the force in either case will be $\frac{M}{x^a}$. The only difference in the two cases is, that in gravity $a = 2$, while in mortality $a = 2,302585$ " (*Letter of T. R. Elmonds to me, dated October 6, 1868*); or to the "Uniform Law of Mortality, from birth to extreme old age," as elucidated by *Benjamin Gompertz* with great erudition in a Paper read before the International Statistical Congress at its fourth session, and in a Paper read before the Royal Society, June 20, 1861.

The British Actuaries have never been united on the old Actuaries' or Combined Experience Table as the best representation of the Mortality of insured lives in Great Britain.

The following is the opinion of Mr. F. G. P. NEISON (*see Contributions to Vital Statistics, Preface, pp. ix, x*):

"There is, likewise, the Table usually denominated the 'Experience Table,' deduced from the recorded observations of fifteen Life offices, in addition to those of the Equitable and Amicable Societies, already mentioned, reported on by the committee of actuaries appointed in the year 1839. In these observations, like those deduced from the Amicable and Equitable Life Offices, the principal portion of the data has no reference to recent years; but there is a much more serious objection to be brought against the results given in the 'Experience Table.' From the indisposition evinced by the contributing offices to let their individual experience be known, even to the members of the committee to whom the inquiry was intrusted, it became necessary that the different schedules should be submitted in an anonymous form; all were given with blank headings, and so completely mixed up together

that it was impossible, afterward, to determine from what office any particular schedule came.

"This arrangement prevented the investigation being any other than one confined to policies issued by those offices, and not an estimate of the mortality among a certain number of lives.

"To those, therefore, of even limited experience, it must be obvious that the results are thereby deprived of all value, as indicating the rate of mortality among the offices contributing the facts.

"Nothing is more notorious than the frequency with which the same life is assured in duplicate and triplicate, not only in the same office, but in several offices, and it often happens that on the same life there has, at one time or another, been issued as many as from twenty to fifty policies in the different offices conjointly.

"To take an extreme example, in order to show the nature of the principle and its effect in vitiating the truth of any results derived from a calculation founded on the number of policies, and not upon the number of lives:

"It is well known, in most of the assurance offices, that a distinguished personage was so fully assured in the life offices in this kingdom that it was impossible to obtain any further policies on his life from assurance companies, and it has been said that recourse was had to Lloyd's to have the life underwritten there. The policies existing upon this life at one time, it has been considered, could not be less than three or four hundred. It is hence evident that a death taking place under such circumstances would, in the result of such inquiry, appear as three or four hundred deaths, while, in fact, only one had happened.

"In like manner, the fact of the life still surviving would produce the anomalous result of there being 1,000 or 2,000 years of risk depending upon the duration of these policies without any recorded death.

"It is therefore clear, that unless the principle of repeated policies on the same life was uniform as to numbers, and very generally characteristic of all the assurances effected, that compensation errors could not be expected to take place sufficient to render the results even a near approximation to the truth.

"So far, therefore, we are yet without any satisfactory data, derived directly from the life offices of this country, which can be relied on as indicating the rate of mortality among the assured classes in recent years."

Mr. Alexander Glen Finlaison, Actuary of the National Debt in Great Britain, says, in his Report on the Mortality of the Government Life Annuitants (1st of August, 1860):

"As regards assured life there only remains for notice one more table, viz., No. 11, the Experience of the seventeen Life assurance offices. The Tables in question are open to the objection, which may almost be termed fatal, that they are based on the experience of policies, -not lives. (Number admitted, 18,282; living at close, 6,124; discontinued, 7,372; died, 4,786.) Now, as very many persons are insured in half a dozen offices at once, they count, when young, and the mortality is light, for half a dozen lives under this arrangement;

but in old age, when men are few, these same persons reckon for half a dozen deaths in their lives falling."

Finlaison's Report, 1860, p. 47.

Mr. John Finlaison, who was for more than thirty years Actuary to the Commissioners of the National Debt, says, in regard to the old Experience Table :

"In that Table I myself count for six, and when I die I shall count for six deaths. A Table so constructed cannot be depended upon for Life insurance purposes."

See his testimony before the Select Committee on Assurance Associations of 1853, Report, p. 64.

Mr. David Chisholm, speaking of his Tables says:

"They have been computed on the Carlisle basis, as being understood to be that most generally used by the Assurance offices. And, although this basis has been held by some Actuaries not only to be limited in extent, but somewhat imperfect in arrangement, there is reason to believe, nevertheless, that in its general features the Carlisle Table gives a sufficiently accurate representation of the law prevailing among the majority of associations for Life assurance, and that the corrections which future experience may show to be necessary will not be of a very important description."

Preface to his Commutation Tables, vol. I, p. iv.

Mr. William Spens, an able actuary, speaks of the old Experience Table as follows:

"I still continue to think that the arrangement of the 'Experience' data by policies instead of persons is very detrimental to their value and authority, especially when such points as the present are involved (the rate of mortality among select lives). The general deductions of expectation of life may not be seriously affected; but for any separate age, or for any isolated question like this, I fear that this mode of arrangement has rendered them almost valueless. I formerly noticed an instance of probable great error in consequence of this among the Irish male lives, when there are represented to be thirteen deaths at age forty in the first calendar year after entry among 347 lives at entry. I may notice another instance among the same lives at age sixty-two, from the year after entry, when nine deaths are represented. I am informed from a source which leaves no doubt of the accuracy of the statement that out of these nine there were at least six on the same life.

"From what has been said above and from casual observation of other mortality, having so much doubt of the 'Experience' data, I thought it desirable to test the value of the Experience in reference to the mortality during the first year of selection by the collection of data from other experience; and the result has convinced me that what has been said above cannot altogether account for the very great difference that is shown, and that whether from the examination of the lives having been less carefully attended to, or whether from any

other cause, the ‘Experience’ lives do not afford data for determining questions on the value of select lives.”

See Assurance Magazine, Journal of the Institute, vol. IV, p. 2.

Mr. *Samuel Brown*, the leading actuary in England, a man of great soundness and discretion of judgment, remarks (in a paper read before the Institute in March, 1854), as follows:

“It may be gathered from the introduction to the tables exhibiting the law of mortality, deduced from the combined experience of seventeen Life assurance offices, printed in 1843, that not only was the task to each contributing company one of great labor and difficulty, but that the method of registering entries and ages was so different that some of the returns, after the time and toil expended, were quite useless for the purpose required, notwithstanding the willingness of the managers to communicate their experience and the value of the information asked for. The former we may gather from the length of time the investigation occupied; for the circular with the forms was dated, as sent out, on the 25th September, 1838, and the committee remark ‘that the whole of the returns were not received from the contributing offices until after the middle of the year 1841, and that the diversified classification of the assurances has added much to the complicity of the operations.’ In another part they state that ‘it was found impracticable to combine the facts contained in the whole of the returns, so as to show the exact number that died, and were discontinued, and existing at each age, as some of the returns were made up giving the current age, and others the complete age, at entering; and the number existing in some returns had been exposed to the risk of mortality for a whole year, and in others to no part of it.’”

Journal Institute, Vol. IV, p. 284.

Mr. *William Thos. Thomson*, one of the most eminent of the Scottish actuaries, says, that,—

“So many actuaries acknowledge the soundness of that basis (the Carlisle observations) for Life assurance and annuity calculations, that I look forward to the day when the Carlisle tables will be admitted as sufficiently accurate to justify their general adoption. * * Since, therefore, the Carlisle tables have been proved by all recent observations to be near the truth—as near as will ever probably be attained—it appears to me not unreasonable, considering the immense labor which has been bestowed on calculations proceeding on that basis, to expect that at no distant period its adoption will be general.”

Actuarial Tables of W. T. Thomson, p. iii.

Dr. *William Farr*, the world-renowned statistician and economist, urges an objection to the use of this table (Combined Experience) for the purpose of determining the premiums or valuing the assets and liabilities of Assurance offices, on the ground that as the average term over which its observations extends is only eight and a half years, it considerably understates the mortality, which it is probable will prevail in insurance societies when they have attained

maturity; also adding that the mortality at the advanced and most important ages, by the Carlisle table, is lower than that which has already been experienced among assured lives, and is indicated by this table. He adds:

"In the course of a century or half a century, from the observations on a great number of assured lives, a Table can be constructed which will be a most valuable contribution to statistical science, and enable competent men to decide whether a Table of the mortality prevailing among the insured lives during the nineteenth century, is more likely to express the mortality of the persons who insure their lives in the twentieth century, than a Life Table deduced from the living, and from the deaths in the population of that day."

Walford's Insurance Guide and Hand-Book, p. 173.

One improvement in the American Experience Table I beg leave to suggest to the Convention for its consideration. A committee should be appointed for the purpose of collecting the data and reporting at a future session of the Convention suitable numbers of the living and dying from age 0 to 9, inclusive, as exigencies in the business are now occurring for their practical use.

II.

AN UNIFORM RATE OF COMPOUND INTEREST
FOR STATE VALUATIONS OF LIFE AND EN-
DOWMENT POLICIES.

I have already shown and tabulated the minimum and maximum and actual business rates of Interest for each State in the Union. It now remains, only, to give the actual rate of Interest which American Life Insurance Companies receive on their investments, as indicated by the touchstone of their financial experience; which I have done for twenty companies, and to the full extent which time and circumstances allowed. (*See Tables Nos. 6 to 26, inclusive.*)

TABLE No. 6.
American Popular Life Insurance Company, N. Y.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1867	\$184,931 79	\$8,364 32	4.523	1867
1868	246,260 50	8,473 28	3.441	1868
1869	292,275 94	10,906 39	3.732	1869
1870	337,174 66	14,434 28	4.281	1870
Total & Av.	\$1,060,642 89	\$42,178 27	3.979	
Average by years (4 years).....				3.994

TABLE No. 7.
Continental Life Insurance Company (New York).

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1867	\$601,002 79	\$24,804 03	4.127	1867
1868	148,668 00	54,107 67	3.659	1868
1869	2,793,640. 67	103,942 39	4.079	1869
1870	4,002,669 05	125,289 38	3.130	1870
Total & av.	\$7,545,980 51	\$308,143 47	4.084	
Average by years (4 years)				3.749

TABLE No. 8.

Equitable Life Assurance Society of the United States, N. Y.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1860	\$139,860 02	\$5,523 64	3.949	1860
1861	186,626 88	8,097 50	4.338	1861
1862	267,324 49	12,141 16	4.541	1862
1863	454,363 19	17,461 95	3.843	1863
1864	805,047 44	37,476 61	4.655	1864
1865	1,305,952 66	70,922 70	5.430	1865
1866	2,332,156 12	102,309 84	4.387	1866
1867	4,101,605 72	183,274 40	4.468	1867
1868	6,423,250 08	360,960 85	5.619	1868
1869	9,115,950 72	499,097 58	5.475	1869
1870	11,873,424 50	681,620 54	5.740	1870
Total and av.,	\$37,005,561 82	\$1,978,886 77	5.349	
Average by years (11 years)			4.767	

* Including premium on gold.

TABLE No. 9.

Guardian Mutual Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1859	\$114,908 03	\$2,525 59	2.198	1859
1860	129,816 06	8,848 00	6.816	1860
1861	120,834 16	4,610 59	3.815	1861
1862	126,693 26	7,799 47	6.156	1862
1863	172,250 53	8,703 35	5.052	1863
1864	273,041 80	24,605 96	9.012	1864
1865	424,817 65	25,492 00	6.001	1865
1866	627,115 89	41,841 92	6.672	1866
1867	889,460 16	47,765 14	5.370	1867
1868	1,262,388 99	58,111 23	4.603	1868
1869	1,764,008 91	64,103 06	3.634	1869
1870	2,161,216 37	64,209 84	2.971	1870
Total & av.	\$8,066,551 81	\$358,616 15	4.446	
Average by years (12 years)			5.191	

TABLE No. 10.
Knickerbocker Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1854	\$134,111 42	\$5,755 11	4.290	1854
1855	145,666 84	9,258 38	6.355	1855
1856	160,167 09	9,431 79	5.888	1856
1857	179,190 49	16,611 79	9.83*	1857
1858	198,825 68	16,932 98	8.52*	1858
1859	221,184 73	20,109 96	9.05*	1859
1860	248,268 03	15,847 81	6.38	1860
1861	267,994 96	14,037 68	5.35	1861
1862	282,088 82	16,964 15	6.02	1862
1863	343,002 87	25,656 68	7.48	1863
1864	470,935 69	30,013 99	6.38	1864
1865	700,635 33	36,831 71	5.26	1865
1866	1,211,819 53	61,608 75	5.09	1866
1867	2,305,101 88	111,575 58	4.84	1867
1868	4,105,578 48	246,221 38	5.99	1868
1869	5,925,924 36	439,619 93	7.42	1869
1870	7,038,312 33	351,678 78	4.99	1870
	\$23,938,808 53	\$1,428,156 45	5.966	
Average by years (17 years).....				6.414

* Including interest accrued.

TABLE No. 14.
Security Life Insurance and Annuity Company, N. Y.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1863	\$141,474 92	\$10,817 80	7.647	1863
1864	204,962 00	17,063 02	8.325	1864
1865	337,429 49	18,811 98	5.576	1865
1866	591,212 93	33,698 47	5.699	1866
1867	1,021,894 40	45,774 21	4.675	1867
1868	1,570,479 90	64,216 60	4.089	1868
1869	2,119,461 47	88,231 02	4.163	1869
1870	2,674,642 38	109,752 69	4.104	1870
Total & av.,	\$8,661,557 49	\$388,365 79	4.472	
Average by years (8 years).....				5.534

TABLE No. 11.
Manhattan Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1852	\$167,122 21	\$2,321 79	1.383	1852
1853	200,604 47	5,001 46	2.443	1853
1854	213,539 26	15,234 52	7.134	1854
1855	351,649 18	23,339 56	6.637	1855
1856	439,550 81	29,919 85	6.579	1856
1857	552,522 11	36,298 70	6.569	1857
1858	657,597 01	41,706 79	6.357	1858
1859	789,846 41	47,371 37	5.996	1859
1860	961,647 43	52,406 03	5.451	1860
1861	1,090,723 80	63,171 34	5.793	1861
1862	1,216,250 05	89,258 49	7.339	1862
1863	1,402,063 56	93,195 90	6.647	1863
1864	1,718,955 48	113,895 11	6.625	1864
1865	2,278,157 27	136,800 52	6.005	1865
1866	3,042,408 30	190,016 74	6.246	1866
1867	3,929,097 68	242,268 91	6.166	1867
1868	4,865,455 09	308,227 26	6.107	1868
1869	5,816,435 01	366,737 61	6.306	1869
1870	6,609,322 89	392,379 32	5.937	1870
Total & av.,	\$36,303,047 93	\$2,249,551 27	6.196	
Average by years (19 years).....				5.880

TABLE No. 16.
Universal Life Insurance Company, N. Y.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1865	\$221,680 20	\$12,462 50	5.621*	1865
1866	278,694 36	17,271 20	6.199	1866
1867	349,499 91	20,153 61	5.767	1867
1868	459,866 23	21,136 97	4.596	1868
1869	665,314 80	22,948 27	3.449	1869
1870	823,736 36	39,334 42	4.775	1870
Total & av.	\$2,798,791 86	\$133,306 97	4.764	
Average by years (6 years).....				5.068

* For eleven months.

TABLE No. 12.
Mutual Life Insurance Company of New York.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1851	\$1,306,251 27	\$86,417 63	6.615	1851
1852	1,820,151 05	.....	.....	1852
1853	2,302,218 09	154,616 34	6.759	1853
1854	2,696,689 58	171,513 44	6.360	1854
1855	3,014,055 92	185,756 91	6.163	1855
1856	3,482,990 02	230,170 59	6.950	1856
1857	4,137,994 87	277,488 71	6.705	1857
1858	4,924,412 25	298,394 06	6.060	1858
1859	5,360,780 52	361,110 11	6.736	1859
1860	6,735,753 08	410,441 50	6.093	1860
1861	7,649,479 79	481,943 02	6.300	1861
1862	8,618,073 95	552,642 59	6.412	1862
1863	9,893,163 16	531,893 93*	5.376*	1863
		652,976 82	6.590	
1864	11,528,706 79	645,936 98*	5.602*	1864
		879,211 40	7.627	
1865	13,392,408 09	668,438 09*	4.991*	1865
		902,158 07	6.735	
1866	16,417,029 53	994,008 59	6.054	1866
1867	21,245,282 76	1,334,566 78	6.282	1867
1868	27,506,189 14	1,769,693 76	6.434	1868
1869	34,298,244 46	2,196,339 86	6.403	1869
1870	41,022,549 69	2,477,772 68	6.040	1870
Total and av.,	\$225,532,272 96	\$14,417,222 86	6.392	
Average by years (19 years)			6.490	

* Including Premium on pol.

TABLE No. 13.
New York Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1852	\$546,715 01	\$26,398 88	4.828	1852
1853	666,266 73	33,025 24	4.956	1853
1854	779,784 63	28,859 52	3.700	1854
1855	961,361 69	36,369 12	3.783	1855
1856	1,125,277 12	59,299 96	5.269	1856
1857	1,297,255 92	83,857 64	6.464	1857
1858	1,499,433 90	78,173 26	5.223	1858
1859	1,681,517 40	91,517 71	5.442	1859
1860	1,877,830 46	112,266 14	5.978	1860
1861	2,051,646 61	107,155 03	5.222	1861
1862	2,353,699 41	134,713 41	5.723	1862
1863	2,649,150 02	136,851 73	5.165	1863
1864	3,223,372 61	252,617 72*	7.837	1864
1865	4,379,763 77	260,424 29*	5.946	1865
1866	6,013,770 65	342,659 20*	5.697	1866
1867	8,084,423 08	487,339 94*	6.081	1867
1868	10,080,288 25	606,988 64*	6.020	1868
1869	12,212,873 61	718,355 44*	5.881	1869
1870	14,643,072 93	816,489 49	5.575	1870
Average ..	\$76,129,503 80	\$4,413,362 36	5.798	
Average by years (19 years).....				5.515

* Including premium on gold.

TABLE No. 15.
United States Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1852	\$160,307 81	\$10,004 75	6.241	1852
1853	192,137 57	13,188 48	6.864	1853
1854	222,448 20	14,790 38	6.649	1854
1855	260,908 18	15,890 00	6.090	1855
1856	312,227 91	18,036 17	5.776	1856
1857	380,904 14	22,223 91	5.836	1857
1858	458,887 40	26,671 07	5.812	1858
1859	536,977 93	31,727 27	5.909	1859
1860	639,073 54	37,007 40	5.791	1860
1861	754,711 92	43,979 14	5.828	1861
1862	842,004 77	50,055 30	5.943	1862
1863	971,876 48	62,013 90	6.381	1863
1864	1,243,865 45	93,817 59	7.543	1864
1865	1,484,873 68	114,440 41	7.707	1865
1866	1,807,702 05	119,563 21	6.614	1866
1867	2,238,247 26	114,807 15	5.129	1867
1868	2,693,220 69	155,577 95	5.777	1868
1869	3,135,087 18	191,116 55	6.096	1869
1870	3,520,424 03	222,170 30	6.311	1870
Total & av.	\$21,855,886 19	\$1,357,080 93	6.209	
Average by years (19 years).....				6.226

TABLE No. 18.
Charter Oak Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1864	\$802,801 55	\$49,668 81	6.187	1864
1865	1,215,308 83	66,521 70	5.474	1865
1866	1,981,225 51	90,270 93	4.556	1866
1867	3,069,565 23	140,484 19	4.576	1867
1868	4,380,879 77	224,309 15	5.121	1868
1869	6,155,635 89	332,281 46	5.391	1869
1870	7,768,691 18	471,722 72	6.072	1870
Total & av.,	\$25,374,107 96	\$1,375,258 96	5.419	
Average by years (7 years).....				5.339

TABLE No. 19.
Connecticut Mutual Life Insurance Company.

YEAR.	Average assets.	Interest received.	Percentage.	YEAR.
1854	\$2,184,256 12	\$126,986 37	5.813	1854
1855	2,213,683 24	144,552 45	6.529	1855
1856	2,373,134 72	156,987 13	6.610	1856
1857	2,559,785 44	134,675 44	5.261	1857
1858	2,813,739 57	182,097 63	6.470	1858
1859	3,147,797 32	201,303 29	6.390	1859
1860	3,537,351 17	230,227 50	6.507	1860
1861	4,028,080 89	254,246 67	6.311	1861
1862	4,595,552 23	305,382 64	6.645	1862
1863	5,399,791 10	466,618 45	8.641	1863
1864	6,817,254 27	649,297 56	9.525	1864
1865	8,804,573 17	526,989 06	5.985	1865
1866	11,597,402 68	722,067 68	6.226	1866
1867	15,492,652 42	897,201 00	5.784	1867
1868	20,168,703 08	1,179,264 89	5.895	1868
1869	25,117,428 27	1,456,669 70	5.799	1869
1870	29,241,218 14	1,789,669 82	6.140	1870
Total & av.,	\$150,092,403 83	\$9,424,237 28	6.278	
Average by the year (17 years)				6.518

TABLE No. 24.
Phænix Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1864	\$413,174 55	\$30,430 78	7.365	1864
1865	645,819 94	46,289 25	7.168	1865
1866	1,092,446 85	83,135 40	7.610	1866
1867	1,749,976 64	119,837 82	6.848	1867
1868	2,857,202 14	187,660 19	6.568	1868
1869	4,289,186 76	269,191 86	6.066	1869
1870	5,502,437 84	311,111 91	5.654	1870
Total & av.,	\$16,550,244 72	\$1,038,657 21	6.274	
Average by years (7 years)				6.754

TABLE No. 20.
Massachusetts Mutual Life Insurance Company.

YEAR.	Average assets.	Interest received.	Percentage.	YEAR.
1857	\$177,004 03	\$2,052 04	1.159	1857
1858	212,981 83	2,704 14	1.269	1858
1859	264,663 47	4,392 31	1.652	1859
1860	339,463 63	6,047 53	1.782	1860
1861	410,353 47	11,859 96	2.889	1861
1862	475,955 33	30,603 23	6.429	1862
1863	593,855 62	23,376 30	3.937	1863
1864	793,727 03	40,019 87	5.042	1864
1865	1,099,596 06	37,842 57	3.441	1865
1866	1,384,000 11	111,056 75	8.024	1866
1867	1,669,707 76	84,083 05	4.816	1867
1868	2,152,136 21	112,917 33	5.246	1868
1869	2,663,156 13	160,314 95	6.019	1869
1870	3,149,629 58	175,840 06	5.582	1870
Total & av.	\$15,386,230 26	\$803,110 09	5.219	
Average for 14 years			4.092	

TABLE No. 25.
Union Mutual Life Insurance Company.

YEAR.	Average Assets.	Interest Received.	Percentage.	YEAR.
1864	\$923,348 92	\$54,316 64	5.883	1864
1865	1,237,743 30	63,513 74	5.131	1865
1866	1,719,653 19	84,116 00	4.892	1866
1867	2,499,856 65	120,930 84	4.838	1867
1868	3,361,060 39	168,384 44	5.188	1868
1869	4,071,108 61	240,670 14	5.912	1869
1870	4,853,206 91	269,588 34	5.554	1870
Total & av.	\$18,665,977 97	\$1,001,520 14	5.365	
Average for 7 years			5.342	

TABLE No. 21.

Mutual Benefit Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1852	\$1,412,737 68	\$77,578 69	5.491	1852
1853	1,666,548 79	93,234 55	5.533	1853
1854	1,903,932 46	109,197 93	5.630	1854
1855	2,131,932 47	121,456 57	5.232	1855
1856	2,357,258 82	138,316 90	5.867	1856
1857	2,613,918 95	152,873 21	5.848	1857
1858	2,872,623 32	170,987 27	5.945	1858
1859	3,201,251 65	191,426 95	5.948	1859
1860	3,606,152 57	214,014 19	5.906	1860
1861	3,960,538 10	224,238 74	5.661	1861
1862	4,274,292 61	258,249 07	6.041	1862
1863	4,952,721 85	319,272 04	6.446	1863
1864	6,295,245 85	306,788 16	4.873	1864
1865	8,148,965 08	473,751 87	5.813	1865
1866	10,415,189 56	630,011 53	6.048	1866
1867	13,023,993 64	743,957 68	5.712	1867
1868	15,469,182 77	903,987 85	5.843	1868
1869	17,984,657 33	1,105,449 69	6.224	1869
1870	20,781,132 95	1,252,357 83	6.026	1870
Total & av.	\$127,072,276 45	\$7,597,130 72	5.978	
Average by years (19 years)			5.794	

TABLE No. 17.

Aetna Life Insurance Company (Hartford).

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1864	\$554,877 69	\$39,307 64	7.085	1864
1865	1,380,907 77	88,365 42	6.398	1865
1866	3,141,019 78	198,863 39	6.330	1866
1867	5,881,323 11	409,405 95	6.961	1867
1868	8,932,756 05	611,283 48	6.844	1868
1869	11,826,378 98	768,482 03	6.498	1869
1870	14,027,120 24	872,786 58	6.222	1870
Total & av.	\$45,189,505 93	\$2,949,186 85	6.527	
Average by years (7 years)			6.542	

TABLE No. 22.

National Life Insurance Company of the United States of America.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1868	\$1,072,921 68	\$26,781 56	2.496*	1868
1869	1,308,250 03	54,339 08	4.154	1869
1870	1,603,104 12	97,448 21	6.079	1870
Total & av.	\$3,984,275 83	\$178,568 85	5.317	
Average by years (2.416 years).....				5.268

* Fraction of a year, five months, allowed for.

TABLE No. 23.

New England Mutual Life Insurance Company.

YEAR.	Average Assets.	Interest received.	Percentage.	YEAR.
1852	\$463,811 98	\$31,810 52	6.845	1852
1853	510,913 34	36,327 93	7.110	1853
1854	591,063 16	40,503 19	6.852	1854
1855	718,977 56	40,760 55	5.669	1855
1856	873,101 63	47,713 80	5.464	1856
1857	1,068,685 79	58,462 05	4.534	1857
1858	1,176,200 24	65,127 60	5.537	1858
1859	1,335,333 21	77,354 00	5.788	1859
1860	1,664,768 12	87,081 69	5.230	1860
1861	2,017,492 44	103,131 34	5.111	1861
1862	2,344,341 15	122,307 72	5.216	1862
1863	2,764,420 80	140,549 60	5.085	1863
1864	3,061,061 28	176,317 67	5.076	1864
1865	3,430,962 15	141,164 82	4.114	1865
1866	4,415,605 65	247,973 26	5.615	1866
1867	5,644,162 64	273,765 30	4.850	1867
1868	6,854,113 22	341,200 82	4.832	1868
1869	8,053,790 70	398,431 35	4.947	1869
1870	9,152,889 54	509,302 87	5.564	1870
Total & av.	\$56,141,694 60	\$2,949,286 08	5.253	
Average by years (19 years).....				5.444

TABLE No. 26.

New York Life Insurance Companies.

NAME OF COMPANY.	No. of years.	Total average Assets.	Total interest received.	Average percentage interest.	Average percentage interest by the year.
American Popular Life	4	\$1,060,642 89	\$42,178 27	3.979	3.994
Continental Life	4	7,545,980 51	308,143 47	4.084	3.749
Equitable Life.....	11	37,005,561 82	1,978,886 77	5.349	4.767
Guardian Life	12	8,067,551 81	358,616 15	4.446	5.191
Knickerbocker Life.....	17	23,938,808 53	1,428,156 45	5.966	6.414
Manhattan Life	19	36,303,047 93	2,249,551 27	6.196	5.880
Mutual Life.....	19	295,532,272 96	14,417,222 86	6.392	6.490
New York Life	19	76,129,503 80	4,413,362 36	5.798	5.515
Security Life	8	8,661,557 49	388,365 79	4.472	5.534
United States Life	19	21,855,886 19	1,357,080 93	6.209	6.226
Universal Life.....	6	2,798,791 86	133,306 97	4.764	5.068
Total and average.....	138	\$448,899,605 79	\$27,074,873 29	6.031	5.371

Life Insurance Companies of other States.

Etna Life	7	\$45,189,505 93	\$2,949,186 85	6.527	6.542
Charter Oak Life	7	25,374,107 96	1,375,258 96	5.419	5.339
Conn. Mutual Life	17	150,092,403 83	9,424,237 28	6.278	6.518
Massachusetts Mutual Life..	14	15,386,230 26	803,110 09	5.219	4.092
Mutual Benefit Life	19	127,072,276 45	7,597,130 72	5.978	5.794
National Life of U. S.....	2,416	3,984,275 83	178,568 85	5.317	5.268
New England Mutual Life...	19	56,141,694 60	2,949,256 08	5.253	5.444
Phoenix Mutual Life	7	16,550,244 72	1,038,657 21	6.274	6.754
Union Mutual Life.....	7	18,665,977 97	1,001,520 14	5.365	5.342
Total and average.....	99.4	\$458,456,717 55	\$27,316,956 18	5.959	5.675
Grand total and average..	237.4	\$907,355,323 34	\$54,400,827 47	5.994	5.508

The table of mortality used has far less influence on the reserve or re-insurance fund than the rate of interest assumed. It is very desirable that we should, if possible, adopt an uniform rate for this purpose throughout the United States. Let it be conceded in the first place that any such uniformity must be a matter of comity only as between the different States; each individual and sovereign commonwealth has a perfect right to legalize any rate it chooses for this purpose; the six per cent States can adopt four per cent, and the ten per cent States eight per cent, at pleasure, each class of States thus having the same actual margin of two per cent over the assumed rate. It is entirely natural that the States where a comparatively low rate of interest prevails should tend to a lower assumed rate than those where the high rates rule, both by statute and the laws of trade. How shall harmony be secured?

In the first place ten millions of people have already united on a medium standard rate of four and a half per cent; and about five millions have adopted four per cent. Shall the ten millions yield to the five, or *vice versa*? Shall all of the United States yield to New England or New England to the rest of the Union?

Any State that chooses to do so can fix upon an elastic rate, adjusted to the special financial thriftiness of each company, whether in or out of its jurisdiction, by enacting that the assumed standard for State purposes of solvency shall be, say two per cent less than the actual average annual rate received by a company on its average assets from organization. Such an act would follow the law of each company's financial experience, and would of course, require of New England companies with home investments only, a reserve much larger than for central and western institutions; but the rule would be uniform in its application to all companies, and give due weight to the greater ability of the same amount of assets invested at high instead of low rates of interest.

It should be borne in mind that most companies are constantly receiving interest on considerable surplus, the receipt of which is entirely in excess of the necessary interest on the reserve.

The six per cent standard.

Mr. John H. Bewley, the active and energetic manager of the Universal Life Insurance Company of New York, appears as the first advocate of this extraordinary proposition, in the Appendix to the proceedings of the first session of the convention.

The first proposition is, that the "stock or low rate [used probably

as convertible terms] companies" should not be charged in a State valuation with a "lower rate of interest than that assumed in the calculation of their premiums."

I may say, generally, that I intend all due respect to the officers of companies, and to all others of whom or of whose opinions I may speak in this connection. If I happen to express myself strongly, the terms are not designed to be personally offensive but spring from the earnestness of my convictions in certain directions.

Now, this proposition of Mr. Bewley's, that the State in testing the status of corporations should be controlled in its principles of solvency by the assumptions and theories of a company, is so patently absurd that all argument seems to be utterly wasted. To the lawyer or legislator it is as irrational as to allow a culprit to be judged by the principles, or lack of principles upon which he bases his own theory of morals, in order to see, not whether he has violated the laws of the land, but whether he has conformed to his own individual assumptions and theories in committing the crime in question. If he has lived up to them he is innocent, otherwise, guilty. I assert that the theoretical beliefs and assumptions of a company are of no consequence whatever in testing its solvency, any more than the particular religious or other tenets of Ramases or Confucius. *Can a company pay its debts at maturity?* If it can it is solvent as regards policyholders. In order to pay debts at maturity something more is necessary than "assumptions" or theories of any kind whatever.

Mr. Bewley is entitled to the credit of almost instantly perceiving the absurdity of the claim interposed, when he asserts that "The validity and justice of this claim, and the propriety of admitting it, evidently depend upon *the sufficiency of the rate assumed by these companies in the calculation of their premiums.*" Precisely, and we are at once remitted to the only pertinent inquiry in the premises. Another delusion should also be distinctly understood and dissipated — the materiality of the assumptions of a company of a rate of interest in computing its premiums without regard to the "loading." The only material inquiry is, what is the *amount* of premium payable; the *modus operandi*, the special hypothesis or theory by or through which this result is reached is of no importance. The public and the State are only interested for this purpose, in knowing the amount of money demanded for one thousand dollars of insurance. If one company charges one hundred dollars per annum for life for a certain policy, and another company charges the same

amount for the same policy, of what pertinence or consequence is it in determining the question of solvency, that one company computed its premiums on a high rate of interest, say six per cent, with large mortality, say English No. 3, and that the other company computed its premiums on four or four and a half interest, with a table of less mortality, and that the loading was so adjusted as to produce the same practical premium?

I was much interested in the able argument of Mr. Bewley to establish the strong probability "that the present rates (of interest) will be fully maintained for at least several generations." But, unfortunately for his inferences therefrom, even his own company has not actually realized *six* per cent interest on its average assets from organization. His argument seems to establish to his own satisfaction that six per cent is a safe assumption, but his own actual experience demonstrates the fallacy of the ratiocination. Mr. Bewley further (p. 146, Official Report of Proceedings of May Session) remarks:

"It may possibly be urged by the advocates of the mutual or high-rate system, that if it be sufficiently safe for stock or low-rate companies to reserve at six per cent, it is equally safe for mutual companies; and that the discrimination shown in favor of the stock companies is an injustice to the mutuals. In answer to this it will at once be admitted that, *so far as it affects the sufficiency of the reserve fund* to meet maturing liabilities is concerned, a six per cent valuation would be equally as safe for mutual as for stock companies. But it must be remembered that the premiums charged by mutual companies are calculated upon a *four* and four and a half per cent interest and that consequently there is an immense margin, *the property of the policyholders*, deposited as it were in trust with the mutual companies, and for which, in their contract with their assured, they enter into no written or binding obligation to return. It is to insure the safety of this margin for the benefit of the policyholder that a four and a half per cent valuation becomes requisite and appropriate for mutual or high-rate companies."

Mr. Bewley admits what is undoubtedly true, that the same reserve is required for the same contract whether in a stock or mutual company, and that to make any discrimination in favor of stock companies would be an "injustice" to the mutuals. He might have gone further, and said that a discrimination the other way would be founded on the legal and scientific fact that a high rate company is, *pro tanto*, so much abler to meet its obligations at maturity, and consequently might be safely valued on a lower standard

of reserve, as its excess of future premiums would counterbalance the smaller re-insurance fund.

But Mr. Bewley wants to protect the members of mutual companies as regards their "immense margin"—the "property of the policyholders" on deposit. Are not these members entirely competent to protect themselves? What protection does Mr. Bewley offer them? Simply that such companies shall be compelled by law to reserve "immense margins," more than he admits to be necessary for purposes of solvency. Will Mr. Bewley explain how he protects such members by not allowing the company to declare dividends and pay over such surplus profits to them? Can he find any safer or more appropriate place for "the property of the policyholders" than their own pockets? Policyholders only want a sufficient reserve for entire safety and solvency; any surplus over this they want to have divided, and the quicker the better for them. It will not then certainly be squandered in "profitless extravagance."

Mr. Bewley seems to assume that a stock company is necessarily a low-rate company, and a mutual company a high-rate company. There is no inherent necessity in this direction. One of the oldest, if not the oldest, of the purely proprietary companies in this country, the New York Life Insurance and Trust Company, has now and has always maintained one of the highest scales of premium. The vicissitudes and changes which certainly occur in the relations of business, might alter and modify the present rates and practices of the various companies. Stock companies devise plans for offering advantages to policyholders in lieu of dividends, and mutual companies offer non-participating policies to compete with stock companies, and many new and complicated forms of policies multiply, in which the features of both system are so ingeniously interwoven as to be incapable of distinct classification.

So far as the public is concerned, it is not the proprietary companies which permanently reduce premiums. A mutual company, reserving only sufficient for re-insurance, and a reasonable margin for contingencies, practically reduces its premiums by annual dividends after one, two or three years to the lowest safe basis. Were it not for this substantial reduction, stock companies, in the very nature of their organizations as purely financial and money-making institutions, would increase their rates up to the exact standard, at which, in their business (not benevolent) judgment, they could make the most money. This is, always has been, and ever will be, the law of gravitation of a purely stock organization in any country in the

world. It is the very definition of such a company, a part of the essence and innermost soul of its corporate being. Is there any *profit* in the life insurance business? Capital seeks to grasp it or share it; for this sole and only purpose it enters into the business. Demonstrate that there is no profit, and capital will timidly retire from the field as too dry and arid to produce the pabulum on which only it feeds and flourishes.

I do not complain of this law of finance and business any more than I do of the diurnal motion of the earth, or of the law of gravitation; but I do protest when capital stands forth as the peculiar and especial guardian of the *public* interests instead of its own. As between the two classes of companies, permanent success to either will be due in a great degree to the enterprise, economy and hard labor of the managers. A stock company may be so discreetly handled as to be able, after a series of years, to pay fair profit to the stockholders, and not tax its policyholders more than mutual companies. No stock company can or will do business for many years below actual cost; the capital is not subscribed for the purpose of being sunk in the payment of either expenses or losses.

When capital *is* sunk beyond a safe margin a company should be compelled to reduce its capital to the actual funds in hand, or to pay an assessment for filling up the gap. A nominal capital, which has been already sunk or lost in business, should not be paraded by either a fire, marine or life insurance company as being actually on hand and in existence. The fact of its destruction or impairment should be recognized coincident with the event. "Capital," says James M. Cook, Comptroller, "only comes into use upon a result which would prevent the formation of the corporation were it anticipated by the corporators themselves."

Report of Comptroller Cook on Insurance Companies, of December 31, 1855,
p. 43; *Barnes' Condensed Insurance Reports, vol. II.*

Mr. Bewley (p. 147 of May Session of the Convention) further claims that "vital interests" were allowed to be created under the four and a half per cent basis with a "(presumed) perfect knowledge on the part of the State officials charged with the administration of these laws, that with the increase of business the margin between their basis and that of six per cent upon which the stock premiums were calculated, and which for a period would be supplied by the subscribed capital, would be continually narrowing and would finally become extinguished."

Having personal knowledge in the premises, I must be permitted

to deny this proposition. Conversely, any company which assumed six per cent interest in its Table of Rates, instead of the legal rate of four and a half per cent, was acting on its own responsibility, with entire knowledge that such assumption was not in harmony with the law of State valuations, and such a corporation must itself provide, either by skill or economy of management, to keep up at all times the statute reserve. It never was my intention, while holding the office of Superintendent, that the capital should be allowed to make up any such deficiency, capital having a task which entirely exhausted its power in maintaining its own intactness and integrity. The lines which divide mutual and mixed from stock companies, and participating from *non-participating* ones are too tenuous for any legislative distinctions in regard to valuations, and the closest analyst would be incompetent to make any complete classification.

It has been said that a four per cent reserve was necessary to prevent extravagance of management in the mutual companies; then why not apply the same rule to the stock companies for the same reason? But an effort is made to set free about one-quarter of the reserve of stock companies, and for what purpose? Is it for purposes of "extravagance?" The argument that mutual companies should reserve on four per cent, in order to prevent excessive expenses, is readily met by the answer that the surplus should not be thus expended, but apportioned in dividends to the policyholders to whom it legitimately belongs. On the contrary, when executive and managing officers *know* that their reserve is eight or ten per cent in excess of their needs for purposes of solvency, officers are tempted to use the interest on this extra reserve for commuting commissions and for illegitimate purposes; persecuting rival companies, venting personal animosities, subsidizing the press, tampering with legislative bodies and public officials, under the hallucination that they are thereby promoting the special interests of their particular company.

A sufficient reserve for solvency is all that the public wishes and all that the State should absolutely require; the remaining surplus can go to no better purpose than in dividends to policyholders, leaving to any corporation the liberty at its option, of keeping an extra reserve for contingencies.

In reference to the theory that a company should reserve on the same assumption of interest and mortality as that on which its table of rates is based, and that such is the contract with policyholders, I dissent from it entirely. There is no such contract, express or implied, with policyholders; the contract, both express and implied, is that

the company will pay the policy at maturity, and that it will reserve sufficient and adequate funds for this purpose, and divide its surplus, if any, according to the provisions of the policy and its charter. There is no understanding on the part of policyholders that the reserve shall be computed on any particular table of mortality or rate of interest, indeed almost universally neither the table or rate of interest assumed are known to or inquired after by the assured. The policyholder desires substance not theory, safety and not technicality. Of what possible benefit is it to a policyholder that his policy is secured by a four per cent instead of a four and a half per cent reserve, provided that the lower reserve is as must be conceded on all sides safe and sufficient and fully adequate to protect the payment of the policy at maturity? So far as the policyholder is concerned he does not receive a single dollar more, even if his policy was secured by a three per cent reserve; the principal debt is the policy, the reserve only security for its payment. A bond secured by a mortgage on property worth ten times its face yields no more than the same principal secured by twice the amount of the debt. Beyond the point of safety the policyholder wants the surplus to be divided and in his own pocket. Imagine a policyholder bringing an action as suggested by Mr. Peet (Report, p. 173) to compel his Company to take back the money apportioned to him by way of dividends, and to keep it as an unnecessary reserve on his policy! Officers of companies may be disposed to keep more than is necessary for the *bona fide* necessities of re-insurance, and strong old companies, which have already on hand a reserve of four per cent, may deem it policy for their companies to compel, by law, companies doing business on a four and a half per cent basis to change to a four per cent reserve, as such an act would embarrass their competitors, or force them into dissolution, thus leaving the field to be monopolized by the four per cent companies.

Requiring companies to reserve on the same rate assumed in computing their premiums, is a basis of reserve which is as fleeting and changing as the sands of the ocean. Any standard table of mortality may be assumed, and almost any of the actual rates of interest, and, by adjusting the "loading," the same rate of gross premium may be established, and the anomaly would thus be presented of valuing companies on various rates of interest, because such rates were theoretically assumed by the Actuary in computing his Tables, although the actual gross premiums payable might be the same. Such action on the part of the different State legislatures would go far to render State supervision delusive and needless.

In order to show the status of companies under the New York standard, the Massachusetts standard and the proposed six per cent standard, I have prepared the following table, which, although perhaps not entirely accurate, will demonstrate the practical operations of the three rules, as applied to the existing business of most of the companies on the 31st day of December, 1870.

TABLE No. 27.

Showing the net values of policies or re-insurance funds of Life Insurance Companies, on the 31st day of December, 1870, transacting business in New York and Massachusetts, according to the legal standards of said States, and the amount and percentage of difference; also, the approximate net values at six per cent interest and the difference thereof as compared with the New York and Massachusetts standards.

NAME OF COMPANY.	Location.	(1) Am't of policies in force Decr. 31, 1870, as per deduced.	(2) Am't of policies in force Decr. 31, 1870, as per deduced to N.Y. & Mass. Dept't re-ins.	(3) Net value Decr. 31, 1870, N.Y. & Mass. Dept't included.	(4) Net value Decr. 31, 1870, Acc'ts, Dep't, Min., etc.	(5) Difference in millions.	(6) Percentage of difference.	(7) Estimated average net value at 6 per cent.	(8) Difference less standard.	(9) Difference less complete with the Mass. standard.
Aetna	Hartford	\$102,195,224 00	\$105,871,333 50	\$11,543,841 00	\$12,730,237 00	\$1,195,306 20	10.36	\$8,728,687 64	\$2,805,153 36	\$4,000,549 36
American Popular	New York	6,405,718 00	6,548,612 00	2,90,113 00	2,34,826 43	34,713 43	11.97	219,615 53	70,497 45	105,210 88
Amicable	New York	2,052,358 32	2,085,917 64	102,862 00	109,619 81	6,527 81	6.54	77,889 23	25,002 75	51,750 56
Anchor	Jersey City	7,320,410 00	7,506,880 39	234,582 00	230,330 83	15,748 88	6.72	177,878 58	51,603 42	72,752 30
Asbury	New York	6,079,148 00	6,070,049 41	258,540 00	278,107 02	19,567 02	7.57	195,714 78	62,225 22	82,392 24
Atlantic	Albany	10,089,303 00	10,327,304 00	627,303 00	673,045 45	45,742 45	7.29	474,868 38	152,434 62	198,177 07
Berkshire	Pittsfield	10,027,753 00	11,382,387 50	1,391,827 00	1,456,047 64	64,220 64	4.01	1,065,613 04	388,213 46	402,454 60
Brooklyn	New York	14,720,000 00	14,726,000 00	1,484,002 00	1,515,324 06	80,822 66	5.63	1,058,918 02	348,583 98	429,406 64
Charter Oak	Hartford	61,351,512 00	61,304,610 00	7,024,535 00	7,554,230 18	50,978 18	7.26	5,317,573 00	1,706,962 00	2,216,747 18
Commonwealth	New York	5,810,118 00	5,751,118 00	224,631 00	245,634 94	21,603 94	9.65	168,591 47	64,439 53	76,043 47
Connecticut Gen'l.	Hartford	5,632,785 00	6,319,548 30	385,061 00	429,122 63	44,061 63	11.41	291,491 18	93,569 82	137,631 45
Connecticut Mut.	Hartford	181,285,762 00	181,282,841 00	21,887,805 29	21,887,964 29	1,604,964 29	7.91	15,285,110 64	4,928,730 36	6,533,694 65
Continental	New York	53,717,629 55	54,435,492 80	3,835,255 00	4,034,777 35	219,522 38	5.73	2,332,288 04	931,966 96	1,151,459 34
Craftsmen	New York	4,683,000 00	4,694,500 00	205,970 00	218,566 94	13,496 94	6.58	165,237 99	49,832 01	63,328 95
Ecclectic	New York	5,440,315 00	5,394,184 67	188,468 00	215,404 01	17,116 01	8.66	130,455 42	45,622 58	65,148 50
Economical	Providence	6,739,717 63	6,771,998 11	20,604,762 00	20,604,809 23	65,809 23	12.21	428,666 39	137,603 61	207,142 84
Empire Mutual	New York	10,726,107 50	10,721,207 50	418,220 00	453,250 37	35,030 37	8.38	316,552 54	101,627 46	136,637 53
Empire State	New York	4,837,400 00	4,748,600 00	124,605 00	143,127 87	8,522 87	6.34	701,895 99	32,709 01	41,231 88
Equitable	New York	143,970,984 00	143,829,397 00	11,375,736 00	12,375,265 00	1,069,529 00	8.87	8,611,432 16	2,704,303 84	3,773,833 50
Excelsior	New York	5,893,865 00	5,982,213 00	317,345 00	339,191 72	21,846 72	6.88	240,230 17	77,114 83	98,961 55

Germania.....	New York.....	32,053,961	\$7	3,097,557	00	3,407,482	25	10,00	2,344,822	65				
Globe Mutual.....	New York.....	30,378,095	00	2,377,513	00	2,662,946	44	6,78	1,845,197	35				
Gov'tt Security.....	New York.....	1,221,500	00	1,223,530	00	1,223,530	00	592,315	65	757,749	00			
Guardian Mut.....	New York.....	23,211,125	00	1,923,921	00	2,081,718	56	3,411	63	10,061	81			
Hannemann.....	Cleveland.....	7,069,198	00	6,948,699	31	332,633	00	42,385	60	12,48	10,079	61		
Hartford L. & An.	Hartford.....	5,400,613	41	5,907,745	47	259,649	00	233,641	04	12,77	1,456,408	20		
Hercules.....	New York.....	811,000	00	23,187,600	00	31,051	00	31,316	07	251,348	90	80,684	01	
Home.....	New York.....	22,992,400	00	23,186,576	90	2,212,561	50	2,382,863	50	170,302	50	6,650	18	
Homoeopathic.....	New York.....	4,670,221	46	4,911,981	46	239,584	00	255,564	34	17,980	34	537,682	32	
Hope Mutual.....	New York.....	9,381,747	00	9,541,174	00	266,633	00	261,517	49	9,13	181,215	09		
International.....	Jersey City.....	2,157,404	00	2,562,404	00	131,150	00	147,030	78	12,16	196,554	30		
Boston.....	New York.....	17,924,332	00	19,943,244	72	1,504,089	00	1,649,611	94	9,21	1,836,002	95		
Knickerbocker.....	New York.....	61,032,515	72	61,032,889	00	6,440,063	00	6,800,740	38	5,69	4,875	127	1,364,935	30
Life As'n of Am'ca.....	St. Louis.....	44,810,240	00	45,477,894	00	2,238,514	00	2,453,448	34	216,934	34	1,693,041	10	
Manhattan.....	New York.....	43,470,076	00	44,273,350	00	4,941,885	00	5,406,569	62	11,43	3,741,006	95		
Massachusetts.....	Springfield.....	32,490,597	00	32,565,157	00	2,767,140	00	3,049,511	55	9,41	10,100	88		
Merchants	New York.....	1,110,600	00	1,139,600	00	32,139	00	35,450	20	3,221	99,290	55		
Metropolitan.....	New York.....	13,303,982	00	13,222,982	00	680,255	00	698,738	78	2,72	365,604	05		
Mutual.....	Newark	22,004,488	76	22,010,194	74	38,581,329	00	41,134,187	03	2,552,958	03	6,62	29,206,066	06
Mutual Benefit	Newark	130,904,083	00	131,176,770	11	15,594,119	00	16,915,271	56	1,221,152	56	8,47	11,804,748	09
Mutual Protection.....	New York.....	5,455,175	15	5,296,338	60	269,906	20	279,686	31	9,780	11	3,62	204,319	00
National.....	New York.....	9,602,128	00	9,679,178	00	771,746	30	777,688	07	55,941	77	7,25	584,211	95
National.....	Montpelier.....	6,109,236	29	6,109,326	96	630,505	00	687,250	62	50,765	62	9,00	477,292	04
National.....	Washington.....	17,758,137	00	18,610,534	16	974,934	00	1,146,719	92	17,815	92	17,63	738,025	04
National Capital.....	Washington.....	1,633,751	00	1,693,751	00	87,230	00	95,069	79	7,779	79	8,91	66,078	53
New England Mut.....	Boston.....	69,975,896	00	69,849,600	84	8,015,841	00	8,358,046	00	342,205	00	4,25	6,067,991	64
New Jersey Mut.....	Newark	7,933,794	44	8,012,182	00	489,816	00	501,925	25	62,112	25	12,68	370,990	72
New York Life.....	New York.....	111,355,353	57	110,791,361	68	13,295,723	00	14,718,301	84	1,422,784	84	10,69	10,034,862	22
North America.....	New York.....	34,501,572	00	35,662,122	00	4,445,661	00	4,599,106	59	150,335	59	3,38	3,367,636	38
North Western.....	New York.....	65,186,706	98	64,891,351	01	7,593,939	00	8,240,319	26	646,360	25	8,51	5,748,627	00
Penn. Mutual.....	Philadelphia.....	22,726,516	00	22,778,946	00	2,138,426	00	2,317,733	01	179,347	01	8,38	1,618,788	49
Phoenix Mutual.....	Hartford.....	56,617,647	00	56,455,317	50	4,351,616	00	4,754,684	72	403,008	72	2,26	3,294,218	74
Provident L. & T. Security.....	Philadelphia.....	9,388,400	00	9,400,915	01	670,185	17	729,288	43	59,158	26	8,83	1,057,457	26
Standard.....	New York.....	35,949,424	00	37,506,669	00	2,619,989	00	2,823,871	15	203,882	15	7,77	1,883,331	68
State Mutual.....	Worcester.....	2,763,883	00	2,869,932	05	158,045	86	176,064	80	18,018	94	11,40	119,640	71
Travelers.....	Hartford.....	11,340,676	00	11,416,176	18	892,517	00	998,569	91	106,052	91	11,89	675,635	37
Union Mutual.....	Augusta	36,093,360	00	36,093,065	00	4,065,731	00	4,038,950	26	543,169	26	13,36	3,077,736	22

TABLE No. 27.—(Continued).

NAME OF COMPANY.	Location.	(1) Am't of policies in force Dec. 31, 1870, as reported to N.Y., deducted (re-lins.)	(2) Am't of policies in force Dec. 31, 1870, as reported to Mass., deducted (re-lins.)	(3) Net value Dec. 31, 1870, N.Y. & Mass. re-lins.	(4) Net value Dec. 31, 1870, Mass.	(5) Difference in standard values.	(6) Percentage of difference.	(7) Estimated avv.-erate approxi-mate net value per cent.	(8) Difference, less, with N.Y. standard.	(9) Difference, less, with the Mass. standard.
United States	New York	\$18,389,882 00	\$2,519,933 00	\$2,356,968 44	-\$123,964 56	-5.18				
Washington	New York	25,651,116 91	2,001,769 00	2,267,392 12	175,623 12	8.39				
Widows & Orphans	New York	26,230,360 16	1,391,070 00	1,365,638 84	-25,371 16	-6.21				
World Mutual	New York	12,215,514 00	333,267 00	353,976 54	20,790 54	5.85				
Total.....		\$1,948,365,027 95	\$1,963,637,152 68	\$219,124,752 82	\$15,990,341 50	....			
Total and average, excluding the U. S. Life and Widows & Orphans		\$1,932,759,631 95	\$199,223,408 53	\$215,363,085 54	\$16,139,677 22	8.101	\$150,812,070 27	\$48,411,088 27	\$64,550,963 08	

The capitals or accumulations of the following companies are impaired to the extent of the various amounts set opposite their names, respectively, in the following Table, according to the New York Life Insurance Report for December 31, 1870, and the Massachusetts Department valuation for the same date.

TABLE No. 28.

NAME OF COMPANY.	Location.	Amount of impairment, as per New York standard.	Amount of impairment, as per Massachusetts standard.
<i>New York State Life Insurance Companies.</i>			
American Popular.....	New York	\$33,036 76	\$67,750 19
Amicable Mutual.....	New York	30,629 15	37,356 96
Asbury.....	New York	80,832 19	100,399 21
Atlantic.....	.....	.....	28,834 61
Commonwealth.....	New York	55,031 10	76,635 04
Craftsmens.....	New York	117,885 26	131,382 20
Eclectic.....	New York	63,934 08	81,050 09
Empire Mutual.....	New York	1,861 37	36,891 74
Excelsior.....	New York	26,878 56	48,725 28
Globe.....	New York .....	.....	112,557 56
Government Security.....	New York	16,255 93	19,667 56
Hercules.....	New York	20,956 91	21,270 98
Homœopathic.....	New York	74,691 09	92,671 43
Hope.....	New York	21,547 79	47,705 28
Manhattan.....	New York .....	.....	13,976 58
Merchants.....	New York	28,283 22	31,604 42
Metropolitan.....	New York	94,053 28	112,547 06
Mutual Protection.....	New York	23,565 82	33,345 93
National.....	New York	82,866 56	138,808 33
Security.....	New York .....	.....	13,600 60
Standard.....	New York	7,772 45	25,791 39
Universal.....	New York .....	.....	839 68
Widows & Orphans Benefit.....	New York	68,906 94	43,535 78
World Mutual.....	New York	61,905 59	82,615 13
Totals N. Y. companies.....	.....	\$910,894 05	\$1,399,653 03
<i>Life Insurance Companies of other States.</i>			
Anchor.....	New Jersey.....	\$17,437 11	\$33,185 99
Connecticut General.....	Hartford, Conn.....	.....	27,855 18
Economical.....	Rhode Island.....	182 81	69,722 06
Hahnemann.....	Ohio.....	49,472 98	91,868 58
International Life & Trust.....	New Jersey.....	1,126 98	17,007 76
National Life Ins. Co. of U.S.A.....	District Columbia.....	254,382 45	426,228 37
National Capitol.....	District Columbia.....	1,306 78	9,086 57
New Jersey Mutual.....	Newark.....	.....	40,983 64
Republic.....	Illinois.....	8,549 55	15,348 69
Safety Deposit.....	Illinois.....	27,449 24	28,450 15
St. Louis Mutual.....	St. Louis.....	.....	90,020 92
Union Central.....	Ohio.....	6,201 96	6,704 31
Totals other States companies.....	.....	\$366,109 86	\$856,522 22
Grand total (35 companies).....	.....	\$1,277,003 91	\$2,256,175 25

Under the almost startling developments of the above Table No. 28, it immediately becomes a practical question of vast importance—what shall be done under the circumstances? Thirty-five companies are impaired, according to the Massachusetts standard, to the extent of two and a quarter million of dollars. Shall these companies be put into the hands of receivers, or their licenses revoked as being in an unsound and insolvent condition?

Such action would be an unnecessary and cruel butchery of corporate life, and a wanton sacrifice of the sacred interests of perhaps an hundred thousand families.

If the high reserve of the Massachusetts standard was essential to solvency, of course no question could be fairly raised; but it is not, and in any competent court it could be proved, to the satisfaction of bench and jury, that insolvency did not exist, and that most, if not all, of said companies are in the possession of assets sufficient with their future premiums to pay all of their outstanding policies at maturity.

Who will pay the two and a quarter millions of dollars necessary to meet the requirements of the Massachusetts law? Is it right to tax policyholders or stockholders for this purpose to this extent? Will the friends of a four per cent standard themselves advance this money? Policyholders do not need or want it for their security. What shall be done? Will it be fidelity to the sacred and delicate interests in your charge to sacrifice them ruthlessly and unnecessarily? The New York standard is adequate and sufficient, and by uniting upon it the interests of all are alike protected and conserved. If Massachusetts companies *ex superabundantia cautela* desire to keep up the four per cent reserve, they can do so, and the same policy can be followed as a corporate rule by any company in any State. These companies are not disturbed in any manner by the four and one-half per cent standard, and all the other companies of the Union are also left undisturbed.

The New York standard represents safety and uniformity; the Massachusetts standard conflict and permanent injury to the business; the six per cent rule is unsafe and dangerous.

Even under the New York standard a range of impairment must be allowed; and I have prepared the following Table No. 29 under which it is proposed to allow *twenty* per cent impairment on capital and *ten* per cent on reserve.

TABLE No. 29.

Showing the amount of proposed impairment allowed to several Life Insurance Companies, on the 31st day of December, 1870, before said companies could be dissolved by compulsory proceedings or their certificates of authority revoked, computed on the basis of twenty per cent oscillation on capital and ten per cent on reserve, by the New York standard; all dividends ceasing to both stockholders and policyholders whenever any impairment exists on either capital or reserve.

NAME OF COMPANY.	Location.	Margin of oscillation on capital (20 per cent).	Margin of oscillation on reserve, Am. Exp. 4½ (10 per cent).	Total legal oscillation allowed.
Etna.....	Connecticut	\$20,572 80	\$1,154,384 10	\$1,174,956 90
American Popular.....	New York	20,000 00	29,011 30	49,011 30
Amicable.....	New York	26,000 00	10,289 00	36,289 00
Anchor.....	New Jersey.....	20,000 00	23,453 20	43,453 20
Asbury	New York	30,000 00	25,854 00	55,854 00
Atlantic Mutual	New York	22,000 00	62,730 30	84,730 30
Berkshire	Massachusetts.....	5,600 00	139,182 70	144,782 70
Brooklyn	New York	25,000 00	143,450 20	168,450 20
Charter Oak.....	Connecticut	40,000 00	702,453 50	742,453 50
Commonwealth.....	New York	24,000 00	22,403 10	46,403 10
Connecticut.....	Connecticut	50,200 00	38,506 10	88,706 10
Connecticut Mutual	Connecticut .....	.....	2,028,284 10	2,028,284 10
Continental.....	New York	20,000 00	383,525 50	403,525 50
Craftsmens.....	New York	40,000 00	20,507 00	60,507 00
Eclectic	New York	30,000 00	19,848 80	49,848 80
Economical	Rhode Island	20,000 00	56,627 00	76,627 00
Empire Mutual	New York	20,000 00	41,822 00	61,822 00
Empire State.....	New York	20,000 00	13,460 50	33,460 50
Equitable	New York	20,000 00	1,137,573 60	1,157,573 60
Excelsior	New York	25,000 00	31,734 50	56,734 50
Germania	New York	40,000 00	309,755 70	349,755 70
Globe.....	New York	20,000 00	243,751 30	263,751 30
Government Security.....	New York	20,000 00	2,736 70	22,736 70
Guardian Mutual	New York	25,000 00	192,392 10	217,392 10
Hahnemann.....	Ohio	40,000 00	33,203 30	73,203 30
Hartford Life & A.....	Connecticut	60,000 00	25,964 90	85,964 90
Hercules	New York	30,000 00	3,105 10	33,105 10
Home	New York	25,000 00	221,256 10	246,256 10
Homeopathic	New York	30,000 00	23,958 40	53,958 40
Hope Mutual	New York	30,000 00	28,665 30	58,665 30
International	New Jersey.....	31,816 55	13,115 00	44,931 55
John Hancock.....	Massachusetts.....	20,000 00	150,409 90	170,409 90
Knickerbocker.....	New York	20,000 00	644,006 30	664,006 30
Life Ass'n of America.....	Missouri .....	.....	223,651 40	223,651 40
Manhattan	New York	20,000 00	494,188 50	514,188 50
Massachusetts	Massachusetts .....	.....	278,716 00	278,716 00
Merchants	New York	25,800 00	3,215 90	32,015 90
Metropolitan.....	New York	40,000 00	68,024 50	109,024 50
Mutual Life	New York .....	.....	3,858,132 90	3,858,132 90
Mutual Benefit.....	New Jersey.....	.....	1,559,411 90	1,559,411 90
Mutual Protection.....	New York	20,000 00	26,990 62	46,990 62
National Capital	Dist. of Columbia	30,000 00	8,729 00	38,729 00
National.....	Vermont .....	.....	63,050 50	63,050 50
National Life	Washington, D. C.	200,000 00	97,493 40	297,493 40
National.....	New York	30,000 00	77,174 63	107,174 63
New England Mut.....	Massachusetts .....	.....	801,584 10	801,584 10
New Jersey Mut.....	New Jersey	20,000 00	48,981 60	68,981 60
New York Life	New York .....	.....	1,329,572 50	1,329,572 50
North America	New York .....	.....	444,866 10	444,866 10
North Western	Wisconsin .....	.....	759,395 90	759,395 90

TABLE No. 29—(*Continued*).

NAME OF COMPANY.	Location.	Margin of oscillation on capital (20 per cent).	Margin of oscillation on Reserve Am. Exp. 4½ (10 per cent).	Total legal oscillation allowed.
Penn. Mutual	Pensylvania	\$32,000 00	\$213,842 60	\$213,842 60
Phoenix Mutual.....	Connecticut	77,035 49	435,167 60	467,167 60
Provident Life & T.....	Pennsylvania.....	20,000 00	67,013 51	144,049 00
St. Louis	St. Louis.....	22,000 00	472,432 90	492,432 90
Security	New York.....	25,000 00	261,998 90	283,998 90
Standard Life.....	New York.....	100,000 00	15,804 58	40,804 58
State Mutual.....	Massachusetts.....	20,000 00	89,251 70	89,251 70
Travelers	Connecticut	40,000 00	69,575 20	169,575 20
Union Central	Ohio	40,000 00	17,184 40	37,184 40
Union Mutual.....	Maine.....	40,000 00	406,578 10	406,578 10
United States.....	New York	40,000 00	251,993 30	291,993 30
Universal.....	New York	40,000 00	58,042 90	98,042 90
Washington.....	New York	25,000 00	209,176 90	234,176 90
Widows & Orphans.....	New York	40,000 00	139,107 00	179,107 00
World Mutual.....	New York	40,000 00	33,326 70	73,326 70
Total 65 Co's.....	.....	\$1,740,024 84	\$20,861,101 34	\$22,601,126 18

Professor *De Morgan* says that the rate of interest assumed by Life offices should "never be above that at which the Government can borrow," namely, that regulated by the price of the funds. This remark was made in reference, of course, to British offices, but is, to a certain extent, applicable to the business of Life insurance in this country. The rate assumed should certainly not be so high as to preclude a company from purchasing, if it desires to do so, United States stocks, as a portion of its accumulations. Policyholders will not be satisfied to have the whole amount of reserve so invested on account of the low rate of interest; and the largest amount of the funds of Life insurance companies naturally flow to investments on bond and mortgage, which pay considerably larger interest, and which class of investments gives aid to policyholders in their business and commercial transactions.

It is entirely clear that a Governmental standard for valuations will be even more than safe, if the rate of interest assumed is not in excess of that which can be realized by investments in the public funds.

A hundred millions can now be so invested at par, in a moment with five per cent interest payable quarterly, and free from national, State or municipal taxation. Beyond reasonable question investments can be made in the United States public funds, for an indefinite period of time, in such a manner as to realize *four and a half per cent* interest, compounded annually. If the rate of interest should ever go down to even four per cent it will be payable quarterly or exempted from taxation, or possess other incidental advantages, which will make the practical rate realizable at least four and a half per cent, compounded annually.

It would probably be practically safe in this country, considering the laws of the different States relating to interest, and the practical ruling business rates actually received, as shown above by Table No. 3, to assume a rate somewhat in excess of that which could be compounded annually on investments in United States bonds, as the companies do not and will not invest all of their funds in this manner, but in divers forms and at much higher rates.

We cannot make and should not strive to make our Life insurance companies more solid and sound than the United States government. Attempting to maintain a *four* per cent reserve is a useless, vain and futile effort in this direction, which the people do not need and do not want to pay for, as the money must of course ultimately come from the policyholders.

Per contra, the recent bold proposition to legalize a *six* per cent

standard (although a not unnatural result of the over-strained rule of *four* per cent) is obnoxious to still greater objections, inasmuch as the one errs on the side of excessive reserve, and the other on that of an insufficient one. Strangely and unaccountably enough we are surprised to find some of the same actuaries the earnest advocates of both errors ; I simply exhibit these two belligerent standards, and each is competent to annihilate the other, leaving the field to be occupied by the golden mean of true conservatism, real progress and rational safety, the four and a half per cent basis, which is already the legal standard for seven powerful States and over ten millions of people.

It should be constantly borne in mind that it is not the object or purpose of a legal standard to interfere with the *corporate* standard of a company ; the genius of our institutions and people requires in this respect the largest freedom consistent with solvency and safety. Let each company be entirely free in this respect to adopt any table of mortality, any rate of interest, any "loading" which may be satisfactory to the stock or policyholders. Neither is it the mission or duty of the State (unless incidentally) to adjust the equities between stockholders and policyholders, or between members of Mutual companies, except in the courts. Neither is it the duty of superintendents to see that the reserve of a company is adequate to make large or even any future dividends, unless dividends are guaranteed ; this is a matter of internal corporate management, which properly belongs to the stockholders or members, and should not be meddled with by the State, through its Insurance Department. Each company should be free to carry out its own theories and plans in this respect, subject only to the laws of the land and its corporate being.

What, then, is the proper function of the State in insurance supervision ?

I answer—to use its best efforts to preserve and maintain the companies in a condition of solvency and safety. If a company is only able to pay its legal obligations at maturity, its manner of operating and doing business, its rates of premium, dividends, etc., should be left to the individual judgments of those whose interests are affected by these questions. Hence, in fixing upon legal standards of mortality and interest, the only inquiry is as to the true and best table and rate of interest for purposes of simple solvency. Any company may at its own option reserve for corporate purposes at four per cent or three and a half or three per cent, and on any table in the world which it selects as the law for its corporate being. In Eng-

land, it seems for years to have been a stumbling-block in the way of Parliament, and a matter incapable of British solution to reconcile the governmental supervision of companies with the corporate independence of such organizations, and to so exercise the functions of the State as not "to interfere with trade." Here, we have solved the problem practically, and now have leisure to mature our theories afterwards.

III.

AN UNIFORM TABLE OF MORTALITY AND RATE OF INTEREST FOR THE STATE VALUATION OF ANNUITIES.

Actual experience in other countries, not to be contemned, teaches us the lesson that it is not safe to value annuities on the same standard of mortality as life policies. We have no American experience as to the duration of the lives of annuitants, and are therefore from necessity, compelled to seek for standards in other countries. The tables of the British government annuitants (Finlaison's) are probably best adapted to this purpose. As to a rate of interest, annuities cannot be sold in this country to any extent, if a rate is assumed lower than say five and a half per cent.

In my opinion, it would tend to solidify and strengthen the life companies, if annuities could be sold to a reasonable extent.

RECAPITULATION.

First. On Mortality Table, I recommend that the *American Experience Table* be adopted for the State valuation of life and endowment policies throughout the whole Union.

That the table be subjected to the test of the New Experience of American companies, to be collected and tabulated in five or ten years; and that thereafter the table shall be modified, if necessary, to accord with such new facts and experience.

That measures be taken immediately to perfect the present table by adding thereto the numbers living and dying from age 0 to 9, inclusive.

Second. Rate of interest. I beg leave to recommend *four and a half per cent* as a safe and judicious standard for an uniform rate for each State in the United States and Territories.

Third. I would suggest, in the absence of any American Experience for the State valuation of annuities, the Government Annuity tables of Great Britain, as reported by Mr. John Finlaison, in 1860, or the very elaborate and complete tables of Mr. Jardine Henry, now in process of completion, with five and one-half per cent interest.

Fourth. I would recommend *net* valuations for all lives healthy on entry (impaired lives to be judged of by the special circumstances), unless the rates of premium run below the net legal standard rates. In all cases where the rates of premium are less than the net rates according to the legal standard of mortality and interest, net valuations should not be allowed, but the principles of gross valuation should be applied, deducting from the present value of future premiums a sum equal to the average percentage of expenses during the whole period of the company's existence, in no case less than ten per centum. Negative values never to be allowed as assets.

Fifth. I would suggest that all life companies should be prohibited from declaring or paying any dividends to either stock or policyholders whenever the capital or reserve is impaired to any extent whatever; the capital at par, to be reckoned as a liability.

Whenever, and only in cases where, a company's capital is impaired more than *twenty* per cent thereof, and the reserve as per the legal standard, impaired more than *ten* per cent thereof, all Licenses or Certificates of Authority, to companies

of other States of the United States to issue new policies to be revoked, and all domestic companies to be dissolved as insolvent corporations, in accordance with State laws. This latter provision, as to an impairment of the reserve, to be applicable only to companies having over a thousand policies in force insuring at least two millions of dollars.

WILLIAM BARNES.

WESTERN AVENUE, ALBANY,
October 18, 1871.

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